

DOE Occupational Radiation Exposure: 2004 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 231.1-1. 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 231.1-1, Appendix G, Table 2, 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	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
Scientists	0160	Engineer
	0170	Scientist
	0184	Health Physicist
	0200	Misc. Professional
	0260	Doctors and Nurses
Service	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	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, 2000-2004

Twenty six sites reported occupational exposure data in 2004. The following is a list of all organizations reporting to the DOE REMS from 2000-2004. 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*					
				'00	'01	'02	'03	'04	
Albuquerque	Ops. and Other Facilities	501001	Albuquerque Operations Office	●	●	●			
		502009	Albuquerque Transportation Division	●	●				
		530001	Kansas City Area Office	●	●	●	●	●	
		531002	Honeywell Federal Manufacturing Tech.	●	●	●	●	●	
		590001	Waste Isolation Pilot Project (WIPP)	●	●	●	●	●	
		593004	Carlsbad Area Miscellaneous Contractors	●	●	●	●	●	
		2806003	National Renewable Energy Lab (NREL) - GO	●	●	●	●		
	Grand Junction	560605	MACTEC-ERS	●	●				
		560704	WASTREN	●	●				
	Los Alamos National Lab. (LANL)	540001	Los Alamos Area Office	●	●	●	●	●	
		544003	Los Alamos National Laboratory	●	●	●	●	●	
		544809	Protection Technologies Los Alamos	●	●	●	●	●	
		544904	Johnson Controls, Inc.	●	●	●	●	●	
	Pantex Plant (PP)	510001	Amarillo Area Office	●	●	●	●	●	
		515002	BWXT - Amarillo	●	●	●	●	●	
		515006	BWXT - Amarillo - Subcontractors		●	●	●	●	
		515009	BWXT - Amarillo - Security Forces	●	●	●		●	
	Sandia National Lab. (SNL)	570001	Kirtland Area 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 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	8009001	DOE North Korea Project		●				
		8011001	Russian Federation Project			●			
	Kazakhstan	8010001	DOE Kazakhstan Project						

Idaho	Idaho Site	3004001	Idaho Field Office						
		3004402	BNFL - Idaho						
		3005004	Bechtel BWXT Idaho, LLC - Services						
		3005016	Bechtel BWXT Idaho, LLC - Subs - Construction						
		3009004	Bechtel BWXT Idaho, LLC - WVDP						
		3260605	SM Stoller - EM						
		3260616	SM Stoller - LM						
		3260634	SM Stoller Service Subs - Grand Junction						
Nevada	Nevada Test Site (NTS)	3500000	Nevada Operations						
		0521204	Bechtel Nevada - Las Vegas						
		0521405	Bechtel Nevada - NTS						
		0521416	Bechtel Nevada - NTS Subcontractors						
		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						
		0529009	Wackenhut Services, Inc. - NV						
Oak Ridge	Ops. and Other Facilities	4004203	Oak Ridge Inst. for Science & Educ. (ORISE)						
		4004501	Oak Ridge Field Office						
		4009006	Morrison-Knudsen (WSSRAP)						
		4009503	Thomas Jefferson National Accel. Facility						
	Oak Ridge Site	4004602	UT-Battelle: Foster Wheeler						
		4006002	Bechtel-Jacobs Co., LLC-ETTP						
		4006012	USEC: Oak Ridge						
		4006302	British Nuclear Fuels Limited (BNFL) (ETTP)						
		4006406	Decontamination & Recovery Sites - ETTP						
		4006503	UT-Battelle - ORNL						
		4006510	Bechtel Jacobs - ORNL						
		4007509	Wackenhut Services						
		4008002	BWXT LLC, Y-12						
		4008010	Bechtel-Jacobs, Y-12						
		0558102	BWXT LLC, Y-12						
		Paducah Gas. Diff. Plant (PGDP)	4007002	Bechtel-Jacobs Co., LLC - Paducah					
	Portsmouth Gas. Diff. Plant (PORTS)	4002502	Bechtel-Jacobs (Portsmouth)						
	Oakland	Ops. and Other Facilities	8001003	Boeing, Rocketdyne - ETEC					
			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						
		0580404	LLNL Services						
		0580503	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 Envir. Mgmt. Project Office						
		4521004	FEMP Office Service Subcontractors						
		4523702	Flour Fernald - FEMP						
		4523704	Flour Fernald Service Vendors						
		4523706	Flour Fernald Subcontractors						
	Mound Plant	4516002	CH2M Hill-Mound, Inc.						
		4516004	CH2M Hill-Mound, Inc. - Subcontractors						
		4516009	CH2M Hill-Mound, Inc. - Security Forces						
	West Valley Project	4530001	West Valley Area 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	Hanford Site	4700805	Bechtel National, Inc. - WTP						
		4701001	Office of River Protection						
		4707104	CH2M Hill Hanford Group						
		7500503	Battelle Memorial Institute (PNL)						
		7500605	Environmental Restoration Contr. (ERC)						
		7500705	Bechtel Power Co.						
		7502504	AdvancedMed Hanford						
		7505004	Fluor Daniel - Hanford						
		7505005	Fluor Daniel Northwest						
		7505006	Fluor Daniel Northwest Services						
		7505012	Babcock Wilcox Hanford						
		7505024	Rust Services Hanford						
		7505025	Rust Federal Services Northwest						
		7505034	Duke Engineering Services Hanford						
		7505035	Duke Engineering & Services Northwest, Inc.						

		7505044	NUMATEC Hanford	●	●	●	●	●
		7505055	Lockheed Martin Info Tech (LMIT)	●	●	●	●	●
		7505064	Dyncorp Hanford	●	●			
		7505075	SGN Eurisys Services Corp.	●	●	●	●	●
		7505099	Hanford Security	●	●	●	●	●
		7506001	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 231.1-1. 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-1a. Operations Office/Site Dose Data - 2002

2002									
Operations/Field Office	Site	Collective TEDE (person-rem)	Percent Change from 2001	Number with Meas. Dose	Percent Change from 2001	Avg. Meas. TEDE (rem)	Percent Change from 2001	Percentage of Coll. TEDE above 0.500 rem	Percent Change from 2001
Albuquerque	Ops and Other Facilities	2.5	101% ▲	118	24% ▲	0.021	62% ▲	0%	0%
	Los Alamos National Lab. (LANL)	163.5	45% ▲	1,696	28% ▲	0.096	14% ▲	35%	4% ▲
	Pantex Plant (PP)	47.3	9% ▲	292	0%	0.162	9% ▲	32%	0%
	Sandia National Lab. (SNL)	4.5	-4% ▼	109	10% ▲	0.042	-13% ▼	0%	0%
	Grand Junction*								
Chicago	Ops. and Other Facilities	4.5	-42% ▼	182	12% ▲	0.025	-48% ▼	12%	12% ▲
	Argonne National Lab. - East (ANL-E)	23.6	2% ▲	233	25% ▲	0.101	-18% ▼	39%	-8% ▼
	Argonne National Lab. - West (ANL-W)	24.9	26% ▲	278	8% ▲	0.090	17% ▲	8%	8% ▲
	Brookhaven National Lab. (BNL)	26.2	79% ▲	439	13% ▲	0.060	58% ▲	20%	20% ▲
	Fermi Nat'l. Accelerator Lab. (FERMI)	12.8	20% ▲	389	6% ▲	0.033	14% ▲	0%	0%
DOE HQ	DOE Headquarters (includes DNFSB)	0.0		0		0.0		0%	0%
	Russian Federation Project	0.0		0		0.0		0%	0%
Idaho	Idaho Site	76.0	-29% ▼	1,089	0%	0.070	-29% ▼	4%	-15% ▼
Nevada	Nevada Test Site (NTS)	0.9	-30% ▼	30	-6% ▼	0.031	-25% ▼	0%	0%
Oakland	Ops. and Other Facilities	3.2	103% ▲	81	-40% ▼	0.040	236% ▲	19%	19% ▲
	Lawrence Berkeley National Lab. (LBNL)	0.9	31% ▲	33	57% ▲	0.027	-16% ▼	0%	0%
	Lawrence Livermore National Lab. (LLNL)	28.0	51% ▲	163	7% ▲	0.172	41% ▲	60%	11% ▲
	Stanford Linear Accelerator Center (SLAC)	3.1	125% ▲	79	126% ▲	0.039	0%	0%	0%
Oak Ridge	Ops. and Other Facilities	1.4	-48% ▼	103	-28% ▼	0.013	-27% ▼	0%	0%
	Oak Ridge Site	107.8	-10% ▼	2,304	-11% ▼	0.047	0%	4%	-7% ▼
	Paducah Gaseous Diff. Plant (PGDP)	8.8	75% ▲	232	90% ▲	0.038	-8% ▼	0%	0%
	Portsmouth Gaseous Diff. Plant (PORTS)	1.0	-18% ▼	37	6% ▲	0.026	-23% ▼	0%	0%
Ohio	Ops. and Other Facilities	0.6	-71% ▼	49	-45% ▼	0.012	-48% ▼	0%	0%
	Battelle Memorial Institute - Columbus	44.4	26% ▲	103	23% ▲	0.431	3% ▲	80%	-3% ▼
	Fernald Environmental Mgmt. Project	17.0	50% ▲	572	61% ▲	0.030	-7% ▼	0%	0%
	Mound Plant	2.7	120% ▲	198	104% ▲	0.014	8% ▲	0%	0%
	West Valley Project	30.5	38% ▲	239	3% ▲	0.128	34% ▲	24%	21% ▲
Rocky Flats	Rocky Flats Env. Tech. Site (RFETS)	250.0	4% ▲	2,175	-11% ▼	0.115	16% ▲	24%	1% ▲
Richland	Hanford Site	274.4	28% ▲	2,611	18% ▲	0.105	9% ▲	29%	-3% ▼
Savannah River	Savannah River Site (SRS)	199.1	-4% ▼	3,217	-12% ▼	0.062	9% ▲	15%	-1% ▼
Totals		1,359.6	10% ▲	17,051	2% ▲	0.080	8% ▲	24%	24% ▲

Note: Boxed values (gray background) indicate the greatest value in each column.
 *No longer in operation, therefore not required to report.

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 Exhibit B-1b. Operations Office/Site Dose Data - 2003.

2003									
Operations/Field Office	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	Ops. and Other Facilities	1.3	-47% ▼	107	-9% ▼	0.012	-42% ▼	0%	0%
	Los Alamos National Lab. (LANL)	240.0	47% ▲	2,047	21% ▲	0.117	22% ▲	49%	14% ▲
	Pantex Plant (PP)	35.9	-24% ▼	290	-1% ▼	0.124	-24% ▼	26%	-6% ▼
	Sandia National Lab. (SNL)	10.2	125% ▲	250	129% ▲	0.041	-2% ▼	0%	0%
	Grand Junction*								
Chicago	Ops. and Other Facilities	1.2	-73% ▼	153	-16% ▼	0.008	-68% ▼	0%	-12% ▼
	Argonne National Lab. - East (ANL-E)	21.4	-9% ▼	231	-1% ▼	0.093	-8% ▼	8%	-31% ▼
	Argonne National Lab. - West (ANL-W)	28.8	15% ▲	277	0%	0.104	16% ▲	22%	14% ▲
	Brookhaven National Lab. (BNL)	12.2	-54% ▼	306	-30% ▼	0.040	-33% ▼	5%	-15% ▼
	Fermi Nat'l. Accelerator Lab. (FERMI)	25.7	101% ▲	612	57% ▲	0.042	28% ▲	7%	7% ▲
DOE HQ	DOE Headquarters (includes DNFSB)								
	North Korea Project								
Idaho	Idaho Site	64.0	-16% ▼	1,141	5% ▲	0.056	20% ▲	3%	-1% ▼
Nevada	Nevada Test Site (NTS)	3.2	251% ▲	69	130% ▲	0.047	53% ▲	0%	0%
Oakland	Ops. and Other Facilities	0.9	-72% ▼	64	-21% ▼	0.014	65% ▲	0%	-19% ▼
	Lawrence Berkeley National Lab. (LBNL)	1.0	16% ▲	20	-39% ▼	0.052	91% ▲	0%	0%
	Lawrence Livermore National Lab. (LLNL)	36.4	30% ▲	202	24% ▲	0.180	5% ▲	69%	9% ▲
	Stanford Linear Accelerator Center (SLAC)	3.1	2% ▲	109	38% ▲	0.029	-26% ▼	0%	0%
Oak Ridge	Ops. 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 Diff. Plant (PGDP)	3.2	-64% ▼	38	-84% ▼	0.084	122% ▲	0%	0%
	Portsmouth Gaseous Diff. Plant (PORTS)	0.6	-39% ▼	26	-30% ▼	0.023	-13% ▼	0%	0%
Ohio	Ops. 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 Mgmt. 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	Rocky Flats Env. Tech. Site (RFETS)	198.6	-21% ▼	1,761	-19% ▼	0.113	-2% ▼	27%	3% ▲
Richland	Hanford Site	280.8	2% ▲	2,626	1% ▲	0.107	2% ▲	37%	8% ▲
Savannah River	Savannah River Site (SRS)	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.
 *No longer in operation, therefore not required to report.

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Exhibit B-4. Internal Dose by Operations/Site, 2002-2004.

Operations/ Field Office	Site	No. of Individuals with New Intakes*			Collective CEDE Dose from Intake (person-rem)			Average CEDE		
		2002	2003	2004	2002	2003	2004	2002	2003	2004
Albuquerque	LANL	111	179	90	3.200	20.131	8.613	0.029	0.112 ◀	0.096 ◀
	Pantex	30	56	43	0.304	0.621	0.305	0.010	0.011	0.007
	Sandia National Lab.	0	5	0	0	0.012	0	0	0.002	0
Chicago	Ops. and Other Facilities	8	0	0	0.028	0	0	0.004	0	0
	ANL-E	17	45	15	0.591	2.414	0.349	0.035	0.054	0.023
	ANL-W	2	0	4	0.013	0	0.049	0.007	0	0.012
	BNL	18	4	29	0.302	0.033	0.398	0.017	0.008	0.014
Idaho	Idaho Site	22	24	28	2.141	0.666	0.584	0.097 ◀	0.028	0.021
Oakland	LBNL	9	0	2	0.165	0	0.013	0.018	0	0.007
	LLNL	2	7	14	0.007	0.037	0.041	0.004	0.005	0.003
Oak Ridge	Oak Ridge Site	1,559 ◀	1,518 ◀	1,276 ◀	54.653 ◀	56.090 ◀	50.320 ◀	0.035	0.037	0.039
	Paducah	10	3	13	0.104	0.026	0.153	0.010	0.009	0.012
	Portsmouth	4	0	8	0.026	0	0.068	0.007	0	0.009
Ohio	Ops. and Other Facilities	28	8	0	0.188	0.062	0	0.007	0.008	0
	BMI-Columbus	35	28	0	0.083	0.093	0	0.002	0.003	0
	Fernald	24	39	16	0.162	0.209	0.068	0.007	0.005	0.004
	Mound Plant	276	357	177	2.161	5.777	4.459	0.008	0.016	0.025
	WVNS	38	9	0	1.088	0.390	0	0.029	0.043	0
Rocky Flats	Rocky Flats	99	134	68	2.902	5.698	5.730	0.029	0.043	0.084
Richland	Hanford Site	24	25	224	0.263	1.617	4.972	0.011	0.065	0.022
Savannah River	Savannah River Site	102	131	87	0.309	0.626	1.189	0.003	0.005	0.014
Totals		2,418	2,572	2,094	68.690	94.502	77.311	0.028	0.037	0.037

Facilities with no new intakes reported during the past 3 years: _____

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

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

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Exhibit B-5. Neutron Dose Distribution by Operations/Site, 2004.






Operations	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)
Albuquerque	Albuquerque	748								748		0%		
	Los Alamos National Lab. (LANL)	8,933	1,027	120	33	9	2			10,124	1,191	12%	57.453	0.048
	Pantex Plant (PP)	6,292	97	9	1					6,399	107	2%	4.904	0.046
	Sandia National Lab. (SNL)	3,217	3							3,220	3	0%	0.026	0.009
Chicago	Chicago Operations	578								578		0%		
	Argonne Nat'l. Lab. - East (ANL-E)	2,252	88	7						2,347	95	4%	3.080	0.032
	Argonne Nat'l. Lab. - West (ANL-W)	687	15	4						706	19	3%	1.062	0.056
	Brookhaven Nat'l. Lab. (BNL)	2,628	11							2,639	11	0%	0.089	0.008
	Fermi Nat'l. Accelerator	1,855								1,855		0%		
DOE-HQ	DOE Headquarters	1								1		0%		
Idaho	Idaho Site	3,777	75	1						3,853	76	2%	2.066	0.027
Nevada	Nevada Test Site (NTS)	5,824	33	2	1					5,860	36	1%	1.705	0.047
Oakland	Oakland Operations	150								150		0%		
	Lawrence Berkeley National Lab. (LBNL)	1,287	3							1,290	3	0%	0.100	0.033
	Lawrence Livermore National Lab. (LLNL)	9,873	72	10	7					9,962	89	1%	6.391	0.072
	Stanford Linear Accelerator Center (SLAC)	5,154	2							5,156	2	0%	0.040	0.020
Oak Ridge	Oak Ridge Operations	1,548								1,548		0%		
	Oak Ridge Site	16,490	71	22	1					16,584	94	1%	5.712	0.061
	Paducah Gaseous Diff. Plant (PGDP)	987	12	7						1,006	19	2%	1.221	0.064
	Portsmouth Gaseous Diff. Plant (PORTS)	638	12							650	12	2%	0.558	0.047
Ohio	Ohio Field Office	76								76		0%		
	Battelle Memorial Institute - Columbus	83								83		0%		
	Fernald Environmental Mgmt. Project	2,201								2,201		0%		
	Mound Plant	406								406		0%		
	West Valley	684								684		0%		
Rocky Flats	Rocky Flats Env. Tech. Site (RFETS)	3,434	107							3,541	107	3%	2.871	0.027
Richland	Hanford Site	7,672	973	56	27	1	1			8,730	1,058	12%	35.923	0.034
	Hanford - Office of River Protection	1,588	14		1					1,603	15	1%	0.755	0.050
Savannah River	Savannah River Site (SRS)	7,526	270	148	58	9				8,011	485	6%	59.456	0.123
	Totals	96,589	2,885	386	129	19	3			100,011	3,422	3%	183.412	0.054

*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: 2004 Annual Report
Exhibit B-6a. Distribution of TEDE by Facility Type - 2002.

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	9,679	945	91	43	4	4						10,766	10%	1,087	57.220	0.053
Fuel/Uran. Enrich.	4,436	677	57	8	2							5,180	14%	744	27.683	0.037
Fuel Fabrication	1,648	540	30	2								2,220	26%	572	16.982	0.030
Fuel Processing	2,555	1,023	97	17								3,692	31%	1,137	48.881	0.043
Maint. and Support	12,301	2,051	415	204	82	48	25					15,126	19%	2,825	316.582	0.112
Other	11,711	1,230	198	98	33	8	8	1				13,287	12%	1,576	29.295	0.019
Reactor	1,109	385	62	19	3	1						1,579	30%	470	135.818	0.289 
Research, General	22,946	1,735	267	112	32	8	18					25,118 	9%	2,172	175.900	0.081
Research, Fusion	361	137	15	1								514	30%	153	4.299	0.028
Waste Proc./Mgmt.	3,802	1,561	223	89	1	1						5,677	33% 	1,875	110.320	0.059
Weapons Fab. & Test	12,622	3,216	747	326	112	25	14					17,062	26%	4,440 	436.597 	0.098
Totals	83,170	13,500	2,202	919	269	95	65	1				100,221	17%	17,051	1,359.577	0.080

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

DOE Occupational Radiation Exposure: 2004 Annual Report
Exhibit B-6b. Distribution of TEDE by Facility Type - 2003.

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	9,260	1,004	86	25	3							10,378	11%	1,118	47.038	0.042
Fuel/Uran. Enrich.	5,040	648	50	10	5							5,753	12%	713	28.548	0.040
Fuel Fabrication	2,189	610	17	4								2,820	22%	631	16.192	0.026
Fuel Processing	2,328	947	114	18	1							3,408	32%	1,080	48.556	0.045
Maint. and Support	13,341	2,328	415	210	85	43	59	1				16,482	19%	3,141	365.825	0.116 
Other	10,436	1,345	156	60	48	26	10				1	12,082	14%	1,646	149.294	0.091
Reactor	1,048	390	95	36	1							1,570	33%	522	37.864	0.073
Research, General	24,446	1,901	296	146	37	19	14					26,859 	9%	2,413	205.769	0.085
Research, Fusion	322	118										440	27%	118	0.740	0.006
Waste Proc./ Mgmt.	3,559	1,648	330	117	18						1	5,673	37% 	2,114	159.917	0.076
Weapons Fab. & Test	13,056	2,926	646	284	89	29	14					17,044	23%	3,988 	384.888 	0.097
Totals	85,025	13,865	2,205	910	287	117	97	1			2	102,509	17%	17,484	1,444.631	0.083

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

DOE Occupational Radiation Exposure: 2004 Annual Report
Exhibit B-6c. 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: 2004 Annual Report
Exhibit B-7a. Collective TEDE by Operations/Site and Facility Type - 2002.

DOE Operations	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	Ops. and Other Facilities									2.3	0.0	0.1	2.5
	Los Alamos National Lab. (LANL)	14.0				48.9	0.0	43.4 ◀	0.6	1.9	0.0	54.8 ◀	163.5
	Pantex Plant (PP)										47.3		47.3
	Sandia National Lab. (SNL)	0.3				0.2	2.1	0.8		0.1	0.6	0.4	4.5
Chicago	Ops. and Other Facilities							0.2	3.7 ◀			0.6	4.5
	Argonne Nat'l. Lab. - East (ANL-E)	7.5				0.1		12.7		3.3			23.6
	Argonne Nat'l. Lab. - West (ANL-W)						0.0	24.9					24.9
	Brookhaven Nat'l. Lab. (BNL)	18.4 ◀				2.4	0.4	2.6		1.6		0.8	26.2
	Fermi Nat'l. Accelerator Lab. (FERMI)	12.8											12.8
DOE HQ	DOE Headquarters												0.0
	Russian Federation Project												0.0
Idaho	Idaho Site				19.0	12.3	22.8 ◀	6.0		13.4		2.6	76.0
Nevada	Nevada Test Site (NTS)					0.9							0.9
Oakland	Ops. and Other Facilities							3.2					3.2
	Lawrence Berkeley National Lab. (LBNL)	0.1						0.8					0.9
	Lawrence Livermore National Lab. (LLNL)							28.0					28.0
	Stanford Linear Accelerator Center (SLAC)	3.1											3.1
Oak Ridge	Ops. and Other Facilities	1.1						0.3					1.4
	Oak Ridge Site		17.9 ◀					27.0			62.8		107.8
	Paducah Gaseous Diff. Plant (PGDP)		8.8										8.8
	Portsmouth Gaseous Diff. Plant (PORTS)		1.0										1.0
Ohio	Ops. and Other Facilities					0.0					0.0	0.6	0.6
	Battelle Memorial Institute - Columbus					44.4							44.4
	Fernald Environmental Mgmt. Project			17.0 ◀									17.0
	Mound Plant					1.9					0.9		2.8
	West Valley					0.0						30.5	30.5
Rocky Flats	Rocky Flats Env. Tech. Site (RFETS)										250.0 ◀		250.0
Richland	Hanford Site					193.6 ◀		12.4		23.9		44.4	274.4 ◀
Savannah River	Savannah River Site (SRS)				29.8 ◀	11.9	4.0	13.5		63.9 ◀	75.0	1.0	199.1
	Totals	57.2	27.7	17.0	48.9	316.6	29.3	175.9	4.3	110.3	436.6	135.8	1,359.6

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

DOE Occupational Radiation Exposure: 2004 Annual Report
Exhibit B-7b. Collective TEDE by Operations/Site and Facility Type - 2003.

DOE Operations	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	Ops. and Other Facilities									1.1	0.2		1.3
	Los Alamos National Lab. (LANL)	11.3				86.4		46.1 ▲	0.1	13.5		82.7 ▲	240.0
	Pantex Plant (PP)										35.9		35.9
	Sandia National Lab. (SNL)	1.7				1.0	2.7	1.2	0.1	1.3	0.8	1.5	10.2
Chicago	Ops. and Other Facilities	0.0						0.6	0.6 ▲				1.2
	Argonne Nat'l. Lab. - East (ANL-E)							21.4					21.4
	Argonne Nat'l. Lab. - West (ANL-W)					0.0		28.7					28.8
	Brookhaven Nat'l. Lab. (BNL)	4.1				1.7	0.4	3.1		2.2		0.7	12.2
	Fermi Nat'l. Accelerator Lab. (FERMI)	25.7 ▲											25.7
DOE HQ	DOE Headquarters												
	Russian Federation Project												
Idaho	Idaho Site				16.9	7.8	24.5 ▲	5.8		7.9		1.3	64.0
Nevada	Nevada Test Site (NTS)					3.2							3.2
Oakland	Ops. and Other Facilities							0.9					0.9
	Lawrence Berkeley National Lab. (LBNL)	0.1						1.0					1.0
	Lawrence Livermore National Lab. (LLNL)							36.4					36.4
	Stanford Linear Accelerator Center (SLAC)	3.1											3.1
Oak Ridge	Ops. and Other Facilities	1.0						0.3					1.3
	Oak Ridge Site		24.8 ▲					28.7			62.5		116.0
	Paducah Gaseous Diff. Plant (PGDP)		3.2										3.2
	Portsmouth Gaseous Diff. Plant (PORTS)		0.6										0.6
Ohio	Ops. and Other Facilities										0.0	0.7	0.7
	Battelle Memorial Institute - Columbus					35.9							35.9
	Fernald Environmental Mgmt. Project			16.2 ▲									16.2
	Mound Plant					4.0					1.8	0.0	5.8
	West Valley											41.7	41.7
Rocky Flats	Rocky Flats Env. Tech. Site (RFETS)										198.6 ▲		198.6
Richland	Hanford Site					211.6 ▲		14.7		34.1		20.4	280.8 ▲
Savannah River	Savannah River Site (SRS)				31.7 ▲	14.3	10.3	17.0		99.9 ▲	85.1	0.2	258.6
	Totals	47.0	28.5	16.2	48.6	365.8	37.9	205.8	0.7	159.9	384.9	149.3	1,444.6

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

DOE Occupational Radiation Exposure: 2004 Annual Report
Exhibit B-7c. Collective TEDE by Operations/Site and Facility Type - 2004

DOE Operations	Site	Accel	Fuel Enrich	Fuel Fab	Fuel Proc	Maint	Reactor	Res, Gen	Res, Fus	Waste proc	Weapons	Other	Tot
Albuquerque	Ops. and Other Facilities									1.2	0.1		1.3
	Los Alamos National Lab. (LANL)	7.7				38.0	0.1	34.3	0.1	1.0	0.1	43.3	124.5
	Pantex Plant (PP)										24.3		24.3
	Sandia National Lab. (SNL)	3.6				2.8	3.1	2.4	0.3	0.7	1.7	2.6	17.1
Chicago	Ops. and Other Facilities							1.2	1.1			0.2	2.5
	Argonne Nat'l. Lab. - East (ANL-E)	6.2				0.2		10.4		2.4		1.4	20.5
	Argonne Nat'l. Lab. - West (ANL-W)							28.0					28.0
	Brookhaven Nat'l. Lab. (BNL)	7.9				2.1	11.6	1.0		1.0			23.7
	Fermi Nat'l. Accelerator Lab. (FERMI)	20.6											20.6
DOE HQ	DOE Headquarters												
	Russian Federation Project												
Idaho	Idaho Site				29.8	7.0	32.7	9.2		29.6		1.3	109.5
Nevada	Nevada Test Site (NTS)					6.6							6.6
Oakland	Ops. and Other Facilities												
	Lawrence Berkeley National Lab. (LBNL)	0.1						0.7					0.7
	Lawrence Livermore National Lab. (LLNL)							31.2					31.2
	Stanford Linear Accelerator Center (SLAC)	3.9											3.9
Oak Ridge	Ops. and Other Facilities	1.1						0.2					1.3
	Oak Ridge Site		16.4					35.0			64.1		115.5
	Paducah Gaseous Diff. Plant (PGDP)		3.4										3.4
	Portsmouth Gaseous Diff. Plant (PORTS)		1.9										1.9
Ohio	Ops. and Other Facilities											0.2	0.2
	Battelle Memorial Institute - Columbus												
	Fernald Environmental Mgmt. Project			15.5									15.5
	Mound Plant					3.8					0.7	0.0	4.6
	West Valley											39.7	39.7
Rocky Flats	Rocky Flats Env. Tech. Site (RFETS)										77.4		77.4
Richland	Hanford Site					154.9		11.2		0.3		38.8	205.2
	Hanford - Office of River Protection					2.1				10.0		1.9	14.0
Savannah River	Savannah River Site (SRS)				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: 2004 Annual Report

Exhibit B-8. Distribution of TEDE by Facility Type Listed in Descending Order of Average Measurable TEDE for Accelerator Facilities, 2004.

Accelerators														
Number of Individuals Receiving Radiation Doses in Each Dose Range (rem)														
Ops. Office	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)
AL	Sandia National Laboratory	403	37	6	1			1		448	10%	45	3.591	0.080
CH	Argonne National Laboratory - East	561	81	12	4	1				659	15%	98	6.170	0.063
AL	Los Alamos National Laboratory	504	102	17	7					630	20%	126	7.695	0.061
CH	Brookhaven National Laboratory	916	117	19	5					1,057	13%	141	7.900	0.056
CH	Fermilab	1,357	451	34	13					1,855	27%	498	20.570	0.041
OAK	Lawrence Berkeley Laboratory	332	2							334	1%	2	0.060	0.030
OAK	Stanford Linear Accelerator Center	5,007	141	8						5,156	3%	149	3.916	0.026
OR	Thomas Jefferson Nat'l Accel Facil	1,432	42	1						1,475	3%	43	1.074	0.025
AL	Johnson Controls, Inc.	1								1	0%		0	
OR	Oak Ridge Field Office	5								5	0%		0	
	Totals	10,518	973	97	30	1		1		11,620	9%	1,102	50.976	0.046

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

DOE Occupational Radiation Exposure: 2004 Annual Report

Exhibit B-9. Distribution of TEDE by Facility Type Listed in Descending Order of Average Measurable TEDE for Fuel Facilities, 2004.

FUEL FACILITIES

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

Ops. Office	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)
OR	Bechtel Jacobs-Paducah	965	31	3	7					1,006	4%	41	3.394	0.083
OR	Bechtel Jacobs-ORNL	1,086	142	29	6					1,263	14%	177	10.962	0.062
OR	Bechtel Jacobs-Portsmouth	618	23	9						650	5%	32	1.899	0.059
OR	Bechtel Jacobs-ETTP	1,674	42	8						1,724	3%	50	2.250	0.045
OR	Wackenhut Services	98	1							99	1%	1	0.031	0.031
OR	British Nuclear Fuels Ltd - (BNFL) - ETTP	1,069	189							1,258	15%	189	3.123	0.017
OR	Bechtel Jacobs-Y-12	238	1							239	0%	1	0.012	0.012
	Totals	5,748	429	49	13					6,239	8%	491	21.671	0.044

FABRICATION

OH	Fluor Fernald Construction Subcontractors	733	333	10						1,076	32%	343	8.819	0.026
OH	Fluor Fernald - FEMP	835	264	6						1,105	24%	270	6.608	0.024
OH	FEMP Office Service Subcontractors	3	2							5	40%	2	0.037	0.019
OH	Fernald Environmental Management Project Office	13								13	0%		0	
OH	Fluor Fernald Service Vendors	2								2	0%		0	
	Totals	1,586	599	16						2,201	28%	615	15.464	0.025

PROCESSING

SR	Wackenhut Services, Inc. - SR	104	19	95	2					220	53%	116	17.528	0.151
SR	Westinghouse Savannah River Co.	947	610	68	55	28	18			1,726	45%	779	82.057	0.105
ID	Bechtel BWXT Idaho - Services	467	244	71	21					803	42%	336	26.416	0.079
ID	Bechtel BWXT Idaho - Construction	121	50	6	3					180	33%	59	3.366	0.057
SR	Westinghouse S. R. Subcontractors	60	7							67	10%	7	0.100	0.014
SR	Savannah River Field Office	24	1							25	4%	1	0.009	0.009
AL	Johnson Controls, Inc.	1								1	0%		0	
AL	KNOLLS-SPRU	38								38	0%		0	
AL	Los Alamos National Laboratory	1								1	0%		0	
SR	Misc. S.R.S. Construction Subcontractors	2								2	0%		0	
	Totals	1,765	931	240	81	28	18			3,063	42%	1,298	129.476	0.100

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

DOE Occupational Radiation Exposure: 2004 Annual Report
Exhibit B-10. Distribution of TEDE by Facility Type Listed in Descending Order of Average Measurable TEDE for Maintenance and Support, 2004.

MAINTENANCE AND SUPPORT

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

Ops. Office	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)
RL	Fluor Northwest Services	16	15	11	10	2						54	70%	38	6.907	0.182
AL	Los Alamos National Laboratory	962	174	42	20	9	2	3				1,212	21%	250	29.245	0.117
RL	Fluor Hanford, Inc.	1,714	1,081	285	115	18	4	9				3,226	47%	1,512	145.16	0.096
NV	Bechtel Nevada - NTS	4,160	91	12	3							4,266	2%	106	6.341	0.060
AL	Sandia National Laboratory	594	41	7	2							644	8%	50	2.832	0.057
RL	Fluor Federal Services	28	21	3	2							54	48%	26	1.383	0.053
ID	Bechtel BWXT Idaho - Construction	204	73	5	5							287	29%	83	4.353	0.052
OH	BWX Technologies, Inc. - Subcontractors	72	53	2				1				128	44%	56	2.907	0.052
RL	CH2M HILL Hanford Group, Inc.	114	44	5								163	30%	49	2.115	0.043
RL	Duratek Federal Services of Hanford	38	5	1								44	14%	6	0.257	0.043
SR	Westinghouse Savannah River Co.	646	375	45	6		1					1,073	40%	427	18.277	0.043
RL	Protection Technology Hanford	78	22	4								104	25%	26	1.112	0.043
ID	Bechtel BWXT Idaho - Services	138	66	4								208	34%	70	2.642	0.038
AL	Johnson Controls, Inc.	1,321	184	21	1							1,527	13%	206	7.747	0.038
CH	Argonne National Laboratory - East	328	6									334	2%	6	0.162	0.027
RL	Duratek Federal Services, Inc.	11	1									12	8%	1	0.023	0.023
NV	Bechtel Nevada - Las Vegas	407	7									414	2%	7	0.158	0.023
CH	Brookhaven National Laboratory	1,358	98	3								1,459	7%	101	2.146	0.021
NV	Bechtel Nevada - Washington Aerial Meas	41	3									44	7%	3	0.061	0.020
OH	BWX Technologies, Inc.	104	49	1	1							155	33%	51	0.930	0.018
RL	Duke Engineering & Services, Hanford	2	1									3	33%	1	0.018	0.018
RL	Battelle - PNNL	27	2									29	7%	2	0.035	0.018
AL	Los Alamos Area Office	57	6									63	10%	6	0.074	0.012
AL	Protection Technologies Los Alamos	497	73	1								571	13%	74	0.893	0.012
SR	Westinghouse S.R. Subcontractors	69	17									86	20%	17	0.166	0.010
SR	Savannah River Field Office	14	3									17	18%	3	0.029	0.010
RL	Lockheed Martin Services, Inc.	15	3									18	17%	3	0.024	0.008

SR	Misc. S.R.S. Construction Subcontractors	2	1								3	33%	1	0.008	0.008
SR	Wackenhut Services, Inc. - SR	22	5								27	19%	5	0.036	0.007
SR	University of Georgia Ecology Laboratory	28	1								29	3%	1	0.006	0.006
RL	Numatec Hanford, Inc.	5	1								6	17%	1	0.004	0.004
ID	BNFL - Idaho	1									1	0%		0	
NV	B.N. - NTS Subcontractors	55									55	0%		0	
NV	Bechtel Nevada - Special Tech Lab	26									26	0%		0	
NV	Nevada Misc Contractors	225									225	0%		0	
NV	Nevada Operations	568									568	0%		0	
NV	Nye County Sheriff	7									7	0%		0	
NV	Wackenhut Services, Inc. - NV	255									255	0%		0	
OH	BWX Technologies, Inc. - Security Forces	18									18	0%		0	
OH	Battelle Memorial Institute - Columbus	83									83	0%		0	
OH	Miamisburg Env Mgmt Proj Office	1									1	0%		0	
OH	Ohio Field Office	1									1	0%		0	
RL	Bechtel Hanford	14									14	0%		0	
RL	Cogema Engineering Corporation	8									8	0%		0	
RL	DOE-Richland Field Office	9									9	0%		0	
	Totals	14,343	2,522	452	165	29	7	13			17,531	18%	3,188	236.051	0.074

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

DOE Occupational Radiation Exposure: 2004 Annual Report

Exhibit B-11. Distribution of TEDE by Facility Type Listed in Descending Order of Average Measurable TEDE for Reactor Facilities, 2004.

REACTOR FACILITIES														
Number of Individuals Receiving Radiation Doses in Each Dose Range (rem)														
Ops. Office	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)
CH	Brookhaven National Laboratory	20	9	6	3	5	6			49	59%	29	11.601	0.400
ID	Bechtel BWXT Idaho - Construction	220	112	47	29	11	3			422	48%	202	30.585	0.151
AL	Los Alamos National Laboratory	3		1						4	25%	1	0.100	0.100
ID	Bechtel BWXT Idaho - Services	37	14	8	1					60	38%	23	2.069	0.090
AL	Sandia National Laboratory	55	28	7	4					94	41%	39	3.068	0.079
ID	BNFL - Idaho		1							1	100%	1	0.013	0.013
RL	Battelle - PNNL	1								1	0%		0	
RL	Bechtel Hanford	2								2	0%		0	
	Totals	338	164	69	37	16	9			633	47%	295	47.436	0.161

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

DOE Occupational Radiation Exposure: 2004 Annual Report
Exhibit B-12. Distribution of TEDE by Facility Type Listed in Descending Order of Average Measurable TEDE for Research, General, 2004.

RESEARCH, GENERAL

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

Ops. Office	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)
CH	Argonne National Laboratory - East	1,250	16	9	4	1	5	2				1,287	3%	37	10.438	0.282
OR	UT-Battelle: Foster Wheeler	92	5	18	12							127	28%	35	7.205	0.206
OAK	Lawrence Livermore National Laboratory	8,495	172	29	11	7	7	5				8,726	3%	231	31.178	0.135
RL	Battelle - PNNL	563	90	21	7	4						685	18%	122	11.145	0.091
AL	Los Alamos National Laboratory	1,484	300	64	18	9	2	2				1,879	21%	395	34.280	0.087
CH	Argonne National Laboratory - West	380	253	44	21	3	4	1				706	46%	326	28.044	0.086
OR	UT-Battelle: ORNL	6,147	262	55	19	3	3					6,489	5%	342	27.675	0.081
CH	Brookhaven National Laboratory	27	14	2								43	37%	16	1.032	0.065
ID	Bechtel BWXT Idaho - Services	177	87	8	8							280	37%	103	6.235	0.061
AL	Sandia National Laboratory	406	38	4	1	1						450	10%	44	2.354	0.054
OAK	Lawrence Berkeley National Laboratory	940	15	1								956	2%	16	0.679	0.042
CH	Chicago Office Subs	36	1									37	3%	1	0.041	0.041
OR	USEC - ETTP	57	1									58	2%	1	0.041	0.041
ID	Bechtel BWXT Idaho - Construction	341	68	5	1							415	18%	74	2.970	0.040
OAK	LLNL Subcontractors	834	1									835	0%	1	0.034	0.034
CH	Ames Laboratory (Iowa State)	108	40									148	27%	40	1.152	0.029
OR	Wackenhut Services	65	2									67	3%	2	0.041	0.021
RL	Fluor Northwest Services	1	1									2	50%	1	0.013	0.013
AL	Los Alamos Area Office	2	1									3	33%	1	0.007	0.007
OR	Oak Ridge Institute for Science & Education (ORISE)	20	48									68	71%	48	0.249	0.005
AL	Johnson Controls, Inc.	5										5	0%		0	
AL	Protection Technologies Los Alamos	8										8	0%		0	
CH	Argonne Site Office	18										18	0%		0	
ID	BNFL - Idaho	1										1	0%		0	
OAK	Oakland Field Office	150										150	0%		0	
RL	Bechtel Hanford	1										1	0%		0	
	Totals	21,608	1,415	260	102	28	21	10				23,444	8%	1,836	164.813	0.090

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

DOE Occupational Radiation Exposure: 2004 Annual Report

Exhibit B-13. Distribution of TEDE by Facility Type Listed in Descending Order of Average Measurable TEDE for Research, Fusion, 2004.

RESEARCH, FUSION														
Number of Individuals Receiving Radiation Doses in Each Dose Range (rem)														
Ops. Office	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)
AL	Sandia National Laboratory	29	2	2						33	12%	4	0.276	0.069
AL	Los Alamos National Laboratory	30	9							39	23%	9	0.125	0.014
CH	Princeton Plasma Physics Laboratory	231	123	1						355	35%	124	1.141	0.009
	Totals	290	134	3						427	32%	137	1.542	0.011

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

DOE Occupational Radiation Exposure: 2004 Annual Report
Exhibit B-14. Distribution of TEDE by Facility Type Listed in Descending Order of Average Measurable TEDE for Waste Processing, 2004.

WASTE PROCESSING

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

Ops. Office	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)
AL	Carlsbad Area Misc. Contractors	481	80							561	14%	80	1.214	0.015
AL	Los Alamos Area Office	1								1	0%		0	
AL	Los Alamos National Lab	60	18	5						83	28%	23	0.957	0.042
AL	Sandia National Laboratory	103	26							129	20%	26	0.721	0.028
AL	Waste Isolation Pilot Project (WIPP)	51								51	0%		0	
CH	Argonne National Laboratory - East	36	16	4	2	1				59	39%	23	2.364	0.103
CH	Brookhaven National Lab	17	8	6						31	45%	14	0.999	0.071
ID	Bechtel BWXT Idaho - Construction	85	22	3						110	23%	25	0.830	0.033
ID	Bechtel BWXT Idaho - Services	191	120	21	5					337	43%	146	8.068	0.055
ID	BNFL - Idaho	166	217	71	12					466	64%	300	20.727	0.069
RL	Battelle - PNNL	1								1	0%		0	
RL	Bechtel Hanford	3								3	0%		0	
RL	Bechtel National Corporation	2								2	0%		0	
RL	CH2M Hill Hanford Group, Inc.	845	182	21	2					1,050	20%	205	10.024	0.049
RL	Cogema Engineering Corp		1							1	100% ▲	1	0.021	0.021
RL	Fluor Hanford, Inc.	1			1					2	50%	1	0.303	0.303 ▲
RL	Protection Technology Hanford	1								1	0%		0	
SR	Misc. S.R.S. Construction Subcontractors	40	18							58	31%	18	0.408	0.023
SR	Savannah River Field Office	40	18	1						59	32%	19	0.366	0.019
SR	Wackenhut Services, Inc. - SR	129	72							201	36%	72	1.283	0.018
SR	Westinghouse S.R. Subcontractors	89	62	36	4					191	53%	102	8.338	0.082
SR	Westinghouse Savannah River Co.	1,657	968	169	34	5				2,833 ▲	42%	1,176 ▲	68.469 ▲	0.058
	Totals	3,999	1,828	337	60	6				6,230	36%	2,231	125.092	0.056

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

DOE Occupational Radiation Exposure: 2004 Annual Report
Exhibit B-15. Distribution of TEDE by Facility Type Listed in Descending Order of Average Measurable TEDE for Weapons Fabrication, 2004.

WEAPONS FABRICATION

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

Ops. Office	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)
RF	Rocky Flats Prime Contractors	887	469	109	61	11			1		1,538	42%	651	62.612	0.096
AL	BWXT - Amarillo	5,285	187	50	18	6					5,546	5%	261	23.916	0.092
OR	BWXT, Y-12	3,926	1,129	186	16	2		1			5,260	25%	1,334	64.115	0.048
AL	BWXT - Amarillo Security Forces	701	7								708	1%	7	0.305	0.044
RF	Rocky Flats Subcontractors	1,521	333	22	5	1					1,882	19%	361	14.655	0.041
AL	Los Alamos National Laboratory	5	2								7	29%	2	0.067	0.034
AL	Sandia National Laboratory	677	56	2	1						736	8%	59	1.695	0.029
RF	Rocky Flats Office	112	9								121	7%	9	0.175	0.019
AL	BWXT - Amarillo Subcontractors	70	2								72	3%	2	0.036	0.018
OH	BWX Technologies, Inc. - Subcontractors	21	20	1							42	50%	21	0.335	0.016
OH	BWX Technologies, Inc.	36	23								59	39%	23	0.361	0.016
SR	Westinghouse Savannah River Co.	293	55								348	16%	55	0.566	0.010
SR	Westinghouse S.R. Subcontractors	4	2								6	33%	2	0.018	0.009
SR	Wackenhut Services, Inc. - SR	9	1								10	10%	1	0.005	0.005
AL	Kansas City Area Office	3	3								6	50%	3	0.013	0.004
AL	Honeywell, Federal Manufacturing & Techno	59	33								92	36%	33	0.121	0.004
AL	Amarillo Area Office	73									73	0%		0	
OH	Miamisburg Env Mgmt Proj Office	1									1	0%		0	
SR	Savannah River Field Office	1									1	0%		0	
	Totals	13,684	2,331	370	101	20		1	1		16,508	17%	2,824	168.995	0.060

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

	Subcontractors	13	2								15	13%	2	0.025	0.013
RL	Lockheed Martin Services, Inc.	22	2								24	8%	2	0.004	0.002
AL	Los Alamos Area Office	11									11	0%		0	
DOE	DOE Headquarters	1									1	0%		0	
OAK	Lawrence Livermore National Laboratory - Nevada	401									401	0%		0	
RL	Advancedmed Hanford	34									34	0%		0	
RL	Bechtel National Corporation	2									2	0%		0	
RL	NUMATEC Hanford, Inc.	4									4	0%		0	
RL	Verizon/Qwest	12									12	0%		0	
SR	Savannah River Field Office	15									15	0%		0	
	Totals	10,393	1,374	193	114	29	8	3	1	12,115	14%	1,722	132.842	0.077	

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

DOE Occupational Radiation Exposure: 2004 Annual Report
Exhibit B-17. Internal Dose by Facility Type and Nuclide, 2002-2004.

Facility Type	Nuclide	No. of Individuals with New Intakes**			Collective CEDE (person-rem)			Average CEDE (rem)		
		2002	2003	2004	2002	2003	2004	2002	2003	2004
Accelerator	Americium	1		2	0.002		0.042	0.002		0.021
	Hydrogen-3	3	3	1	0.057	0.023	0.005	0.019	0.008	0.005
	Plutonium		1	1		0.006	0.100		0.006	0.100
	Uranium	3	3	1	0.031	0.013	0.011	0.010	0.004	0.011
	Total	7	7	5	0.090	0.042	0.158	0.013	0.006	0.137
Fuel Fabrication	Other			1			0.001			0.001
	Thorium	16	18	15	0.110	0.074	0.067	0.007	0.004	0.004
	Uranium	8	21		0.052	0.135		0.007	0.006	
	Total	24	39	16	0.162	0.209	0.068	0.007	0.005	0.005
Fuel Processing	Americium		1			0.014			0.014	
	Hydrogen-3	77	102	5	0.208	0.286	0.049	0.003	0.003	0.010
	Plutonium	5	5	13	0.082	0.110	0.691	0.016	0.022	0.053
	Uranium			1			0.012			0.012
	Total	82	108	19	0.290	0.410	0.752	0.004	0.004	0.075
Fuel/Uranium Enrichment	Americium	3	4	6	0.027	0.006	0.194	0.009	0.006	0.032
	Other	3	1	2	0.041	0.006	0.005	0.014	0.006	0.003
	Plutonium	1	2	7	0.009	0.004	0.428	0.009	0.002	0.061
	Thorium	3	2	10	0.017	0.021	0.128	0.006	0.011	0.013
	Uranium	222	372	158	1.677	6.618	1.688	0.008	0.018	0.011
	Total	232	378	183	1.771	6.655	2.443	0.008	0.018	0.120
Maintenance and Support	Americium	23	36	11	0.117	1.509	0.195	0.005	0.042	0.018
	Hydrogen-3	88	66	51	0.313	0.422	0.483	0.004	0.006	0.009
	Mixed and Other	29	9	10	0.224	0.048	0.014	0.008	0.005	0.001
	Plutonium	108	203	246	0.961	4.122	6.635	0.009	0.020	0.027
	Radon-222	3			0.173			0.058		
	Thorium	23	13	5	0.485	0.240	0.080	0.021	0.018	0.016
	Uranium	28	18	10	0.176	0.070	0.054	0.006	0.004	0.005
	Total	302	345	333	2.449	6.411	7.461	0.008	0.019	0.076
Other	Americium	15	4		0.715	0.309		0.048	0.077	
	Hydrogen-3	21	24	7	0.147	0.065	0.021	0.007	0.003	0.003
	Mixed		1	7		0.002	0.076		0.002	0.011
	Other			2			0.004			0.002
	Plutonium	39	33	55	0.760	7.841	5.287	0.019	0.238	0.096

	Radon-222	12	19	12	1.942	0.568	0.160	0.162 ◀	0.030	0.013
	Thorium			9			0.102			0.011
	Uranium	30	22	25	0.225	0.106	0.100	0.008	0.005	0.004
	Total	117	103	117	3.789	8.891	5.750	0.032	0.086	0.140
Reactor	Americium			12			0.221			0.018
	Hydrogen-3	17	10	2	0.025	0.014	0.047	0.001	0.001	0.024
	Mixed			4			0.035			0.009
	Plutonium	1		1	0.022		0.100	0.022		0.100
	Total	18	10	19	0.047	0.014	0.403	0.003	0.001	0.151
Research, Fusion	Hydrogen-3	10	1		0.061	0.008		0.006	0.008	
	Total	10	1		0.061	0.008		0.006	0.008	
Research, General	Americium	3	20	6	0.098	1.078	0.059	0.033	0.054	0.010
	Hydrogen-3	24	21	26	0.329	0.139	0.101	0.014	0.007	0.004
	Mixed and Other	4	1	14	0.017	0.002	0.060	0.004	0.002	0.004
	Plutonium	10	58	21	1.614	4.624	4.572	0.161	0.080	0.218 ◀
	Uranium	26	19	15	0.711	0.070	0.081	0.027	0.004	0.005
	Total	67	119	82	2.769	5.913	4.873	0.041	0.050	0.241
Waste Processing	Americium	13	1	5	0.257	0.021	0.090	0.020	0.021	0.018
	Hydrogen-3		7	11		0.023	0.062		0.003	0.006
	Mixed and Other		9			0.134			0.015	
	Plutonium	9	5	7	0.299	9.818	0.230	0.033	1.964 ◀	0.033
	Thorium									
	Uranium	1	2		0.016	0.003		0.016	0.002	
	Total	23	24	23	0.572	9.999	0.382	0.025	0.417	0.057
Weapons Fab. and Testing	Americium	7	15		0.010	0.172		0.001	0.011	
	Hydrogen-3	30	37	64	0.211	0.252	0.543	0.007	0.007	0.008
	Mixed	3	1	2	0.050	0.001	0.011	0.017	0.001	0.006
	Other			3			0.007			0.002
	Plutonium	125	185	88	3.121	6.999	6.132	0.025	0.038	0.070
	Thorium	25	50	30	0.224	0.595	0.245	0.009	0.012	0.008
	Uranium	1,346 ◀	1,150 ◀	1110 ◀	53.074 ◀	47.931 ◀	48.083 ◀	0.039	0.042	0.043
	Total	1,536	1,438	1,297	56.690	55.950	55.021	0.037	0.039	0.137
Totals	2,418	2,572	2,094	68.690	94.502	77.311	0.028	0.037	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: 2004 Annual Report
Exhibit B-18a. Distribution of TEDE by Labor Category - 2002.

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	Total Monitored	Percent of Monitored with Meas. TEDE	No. with Meas. TEDE	Collective TEDE (person-rem)	Avg. Meas. TEDE (rem)
Agriculture	95	1										96	1%	1	0.012	0.012
Construction	4,278	1,616	247	68	11	6	1					6,227	31%	1,949	118.805	0.061
Laborers	1,070	462	98	36	9							1,675	36%	605	45.835	0.076
Management	8,083	1,199	132	49	8	4						9,475	15%	1,392	75.608	0.054
Miscellaneous	4,478	1,155	201	123	42	3	3					6,005	25%	1,527	142.222	0.093
Production	2,744	1,681	378	211	90	37	22					5,163	47%	2,419	306.094	0.127
Scientists	23,493	2,656	150	70	19	8	5					26,401	11%	2,908	130.564	0.045
Service	3,945	499	114	17	1							4,576	14%	631	33.386	0.053
Technicians	7,554	2,025	622	219	48	24	18					10,510	28%	2,956	313.335	0.106
Transport	1,038	214	23	8								1,283	19%	245	10.558	0.043
Unknown	26,392	1,992	237	118	41	13	16	1				28,810	8%	2,418	183.158	0.076
Totals	83,170	13,500	2,202	919	269	95	65	1	0	0	0	100,221	17%	17,051	1,359.577	0.080

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

DOE Occupational Radiation Exposure: 2004 Annual Report
Exhibit B-18b. Distribution of TEDE by Labor Category - 2003.

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	Total Monitored	Percent of Monitored with Meas. TEDE	No. with Meas. TEDE	Collective TEDE (person-rem)	Avg. Meas. TEDE (rem)
Agriculture	99											99	0%	0	0	0
Construction	4,488	1,631	162	60	11	1						6,353	29%	1,865	93.518	0.050
Laborers	1,329	428	83	15	4							1,859	29%	530	31.930	0.060
Management	9,064	1,732	258	83	16	1	5					11,159	19%	2,095	129.434	0.062
Miscellaneous	3,503	914	135	82	29	7	3					4,673	25%	1,170	103.246	0.088
Production	2,794	1,645	363	237	83	60	43					5,225	47%	2,431	349.143	0.144
Scientists	21,974	2,409	206	65	16	3						24,673	11%	2,699	120.438	0.045
Service	4,074	670	142	13	4		1					4,904	17%	830	44.240	0.053
Technicians	7,581	1,902	546	209	65	22	14					10,339	27%	2,758	297.298	0.108
Transport	1,182	229	12	6								1,429	17%	247	9.304	0.038
Unknown	28,937	2,305	298	140	59	23	31	1			2	31,796	9%	2,859	266.080	0.093
Totals	85,025	13,865	2,205	910	287	117	97	1	0	0	2	102,509	17%	17,484	1,444.631	0.083

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

DOE Occupational Radiation Exposure: 2004 Annual Report
Exhibit B-18c. 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: 2004 Annual Report
Exhibit B-19. Internal Dose by Labor Category, 2002-2004.

Labor Category	No. of Individuals with New Intakes			Collective CEDE Dose from Intake (person-rem)			Average CEDE		
	2002	2003	2004	2002	2003	2004	2002	2003	2004
Construction	396	450	389	8.059	9.601	8.678	0.020	0.021	0.022
Laborers	62	62	88	3.885	3.151	2.989	0.063 ◀	0.051 ◀	0.034
Management	216	162	177	7.270	6.157	5.764	0.034	0.038	0.033
Miscellaneous	80	102	39	2.812	3.944	1.786	0.035	0.039	0.046 ◀
Production	564 ◀	599	541 ◀	23.327 ◀	26.336	25.081 ◀	0.041	0.044	0.046 ◀
Scientists	239	193	198	5.259	4.945	5.638	0.022	0.026	0.028
Service	33	44	16	0.545	1.884	0.440	0.017	0.043	0.028
Technicians	293	299	269	8.053	8.342	10.744	0.027	0.028	0.040
Transport	8	5	11	0.026	0.024	0.143	0.003	0.005	0.013
Unknown	527	656 ◀	366	9.454	30.118 ◀	16.048	0.018	0.046	0.044
Totals	2,418	2,572	2,094	68.690	94.502	77.311	0.028	0.037	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: 2004 Annual Report
Exhibit B-20. Dose Distribution by Labor Category and Occupation, 2004.

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	136	2										138	1%	2	0.023	0.012
	Misc. Agriculture	12											12	0%	0		
Construction	Carpenters	289	113	13									415	30%	126	5.013	0.040
	Electricians	1,154	481	37	5		1						1,678	31%	524	19.328	0.037
	Masons	25	7										32	22%	7	0.139	0.020
	Mechanics/Repairers	558	218	41	15	3	1						836	33%	278	21.446	0.077
	Miners/Drillers	89	10										99	10%	10	0.163	0.016
	Misc. Repair/Construction	1,500	455	32	7	1	2						1,997	25%	497	20.869	0.042
	Painters	129	37	1	1								168	23%	39	1.476	0.038
	Pipe Fitter	538	249	33	17	9	2	1					849	37%	311	26.907	0.087
Laborers	Handlers/Laborers/Helpers	1,600	339	92	18	4	1						2,054	22%	454	34.430	0.076
Management	Admin. Support & Clerical Sec.	2,550	424	79	34	11	3						3,101	18%	551	46.084	0.084
	Manager - Administrator	6,254	1,265	109	29	2							7,659	18%	1,405	58.432	0.042
	Sales	4	1										5	20%	1	0.011	0.011
Misc.	Military	1											1	0%	0		
	Miscellaneous	3,233	951	195	78	23	7						4,487	28%	1,254	106.082	0.085
Production	Machine Setup/Operators	167	159	55	6	2							389	57%	222	17.087	0.077
	Machinists	258	43	9	6			1					317	19%	59	6.276	0.106
	Misc. Precision/Production	820	258	77	27	4			1				1,187	31%	367	33.549	0.091
	Operators, Plant/System/Util.	1,271	963	325	151	34	12	8					2,764	54%	1,493	178.462	0.120
	Sheet Metal Workers	157	48	8	4	2							219	28%	62	4.542	0.073
	Welders and Solderers	83	23	3	1	1							111	25%	28	2.070	0.074
Scientists	Doctors and Nurses	89	28	2									119	25%	30	0.839	0.028
	Engineer	7,222	853	47	18	2	1						8,143	11%	921	32.505	0.035
	Health Physicist	290	77	8	1								376	23%	86	3.322	0.039
	Misc. Professional	5,041	708	50	12								5,811	13%	770	25.740	0.033
	Scientist	8,549	506	55	9	3	5	3					9,130	6%	581	34.142	0.059
Service	Firefighters	580	36	1									617	6%	37	0.719	0.019
	Food Service Employees	6	1	1	1								9	33%	3	0.593	0.198
	Janitors	617	49	13	7								686	10%	69	5.818	0.084
	Misc. Service	445	33	8	3	1							490	9%	45	3.865	0.086
	Security Guards	1,981	373	111	5								2,470	20%	489	27.436	0.056
Technicians	Engineering Technicians	2,140	187	36	6	4	5	2					2,380	10%	240	22.872	0.095
	Health Technicians	96	12	13	8								129	26%	33	5.036	0.153

	Misc. Technicians	2,251	273	57	23	7	6						2,617	14%	366	34.011	0.093
	Radiation Monitors/Techs.	1,647	972	253	87	11	3	4	1				2,978	45%	1,331	119.431	0.090
	Science Technicians	863	223	26	12	1	2						1,127	23%	264	18.147	0.069
	Technicians	655	153	31	20	4	1						864	24%	209	19.456	0.093
Transport	Bus Drivers	8	4										12	33%	4	0.081	0.020
	Equipment Operators	382	82	11	9								484	21%	102	6.257	0.061
	Misc. Transport	473	39	1									513	8%	40	0.967	0.024
	Pilots	1											1	0%	0		
	Truck Drivers	532	69										601	11%	69	1.497	0.022
Unknown	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		15,739	1094.358	0.070

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

														11	0.020	0.002
		Plutonium		66	12	3	1				1			83	3.518	0.042
		Thorium		4	1									5	0.080	0.016
		Uranium		5										5	0.034	0.007
Oak Ridge	Oak Ridge Site	Americium		2	4									6	0.217	0.036
		Hydrogen-3		2										2	0.018	0.009
		Other		12										12	0.024	0.002
		Plutonium		4	1	2								7	0.428	0.061
		Thorium		1										1	0.003	0.003
		Uranium		666	431	139	10	2						1,248	49.630	0.040
	Paducah	Americium		2										2	0.006	0.003
		Other		2										2	0.005	0.003
		Thorium		4	1									5	0.114	0.023
		Uranium		4										4	0.028	0.007
	Portsmouth	Thorium		4										4	0.011	0.003
		Uranium		4										4	0.057	0.014
Rocky Flats	Rocky Flats Environmental Technology Site	Plutonium		29	33	5					1			68	5.730	0.084
Richland	Hanford Site	Americium		7	1									8	0.115	0.014
		Hydrogen-3		2										2	0.003	0.002
		Plutonium		208	2				1			1		212	4.844	0.023
	Hanford-Office of River Protection	Plutonium		2										2	0.010	0.005
Savannah River	Savannah River Site	Hydrogen-3		54										54	0.372	0.007
		Mixed		5	2									7	0.076	0.011
		Plutonium		2		3								5	0.573	0.115
		Thorium		8	1									9	0.102	0.011
		Uranium		12										12	0.066	0.006
Totals				1,364	521	184	12	7	3	1	1	1		2,094	77.311	0.037

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

DOE Occupational Radiation Exposure: 2004 Annual Report
Exhibit B-22. Extremity Dose Distribution by Operations/Site, 2004.

Operations	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)
AL	Albuquerque	643	97	8						748	105		4.377	0.042
	Los Alamos National Laboratory (LANL)	9,486	276	293	54	9	4	2		10,124	638	15	391.526	0.614
	Pantex Plant (PP)	6,264	33	81	21					6,399	135		75.446	0.559
	Sandia National Laboratory (SNL)	3,178	12	25	5					3,220	42		17.691	0.421
CH	Argonne National Laboratory - East (ANL_E)	2,227	84	20	13	2	1			2,347	120	3	61.830	0.515
	Argonne National Laboratory - West (ANL_W)	364	252	78	10	2				706	342	2	63.239	0.185
	Brookhaven National Laboratory (BNL)	2,639								2,639				
	Chicago	541	35	2						578	37		1.730	0.047
	Fermi National Accelerator Laboratory (FERMI)	1,848	2	4	1					1,855	7		2.940	0.420
DOE HQ	DOE HQ	1								1				
ID	Idaho Site	2,294	1,126	418	15					3,853	1,559		157.142	0.101
NV	Nevada Test Site (NTS)	5,825	15	14	6					5,860	35		17.262	0.493
Oakland	Lawrence Berkeley National Laboratory (LBNL)	1,249	29	7	3	1	1			1,290	41	2	25.948	0.633
	Lawrence Livermore National Laboratory (LLNL)	9,891	15	34	18	3	1			9,962	71	4	89.396	1.259
	Oakland Operations	150								150				
	Stanford Linear Accelerator Center (SLAC)	5,156								5,156				
OH	Battelle Memorial Institute - Columbus (BMI)	83								83				
	Fernald Environmental Mgmt Project	2,197	4							2,201	4		0.200	0.050
	Mound	406								406				
	Ohio Field Office	76								76				
	West Valley Nuclear	415	145	124						684	269		50.365	0.187
OR	Oak Ridge Operations	1,497	50	1						1,584	51		0.385	0.008
	Oak Ridge Site	16,350	65	133	35	1				16,584	234	1	129.057	0.552
	Paducah Gaseous Diff Plant (PGDP)	1,006								1,006				
	Portsmouth Gaseous Diff Plant (PORTS)	650								650				
RFO	Rocky Flats Environmental Tech Site (RFETS)	2,447	868	217	9					3,541	1,094		99.420	0.091
RL	Hanford Site	6,005	1,765	752	181	17	10			8,730	2,725	27	919.248	0.337
	Hanford - Office of River Protection (ORP)	1,161	238	182	18	3		1		1,603	442	4	144.484	0.327
SR	Savannah River Site (SRS)	5,051	2,049	721	147	28	12	3		8,011	2,960	43	1,001.959	0.338
	Totals	89,100	7,160	3,114	536	66	34	6		100,011	10,911	101	3,253.645	0.298

*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.

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