

DOE Occupational Radiation Exposure: 2011 Annual Report
Exhibit A-1. Labor Categories and Occupation Codes.

The following is a list of the Occupation Codes that are reported with each individual's dose record to the DOE Radiation Exposure Monitoring System (REMS) in accordance with DOE Order 231.1B. Occupation Codes are grouped into Labor Categories for the purposes of analysis and summary in this report. The occupation codes are listed in the REMS Reporting Guide, Table 7, and represent a subset of the occupations listed in the Department of Commerce's Standard Occupational Classification (SOC) Manual (1980).

| Labor Category | Occupation Code | Occupation Name |
|---------------------|-----------------|---------------------------------|
| Agriculture | 562 | Groundskeepers |
| | 570 | Forest Workers |
| | 580 | Misc. Agriculture |
| Construction/Repair | 610 | Mechanics/Repairers |
| | 641 | Masons |
| | 642 | Carpenters |
| | 643 | Electricians |
| | 644 | Painters |
| | 645 | Pipe Fitter |
| | 650 | Miners/Drillers |
| | 660 | Misc. Repair/Construction |
| Laborers | 850 | Handlers/Laborers/Helpers |
| Management | 110 | Manager - Administrator |
| | 400 | Sales |
| | 450 | Admin. Support and Clerical |
| Misc. | 910 | Military |
| | 990 | Miscellaneous |
| Production | 681 | Machinists |
| | 682 | Sheet Metal Workers |
| | 690 | Operators, Plant/System/Utility |
| | 710 | Machine Setup/Operators |
| | 771 | Welders and Solderers |
| | 780 | Misc. Precision/Production |
| Professional | 160 | Engineer |
| | 170 | Scientist |
| | 184 | Health Physicist |
| | 200 | Misc. Professional |
| | 260 | Doctors and Nurses |
| Service Workers | 512 | Firefighters |
| | 513 | Security Guards |
| | 521 | Food Service Employees |
| | 524 | Janitors |
| | 525 | Misc. Service |
| Technicians | 350 | Technicians |
| | 360 | Health Technicians |
| | 370 | Engineering Technicians |
| | 380 | Science Technicians |
| | 383 | Radiation Monitors/Techs. |
| | 390 | Misc. Technicians |
| Transport Workers | 820 | Truck Drivers |
| | 821 | Bus Drivers |
| | 825 | Pilots |
| | 830 | Equipment Operators |
| | 840 | Misc. Transport |
| Unknown | 1 | Unknown |

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Exhibit A-2. Organizations Reporting to DOE REMS, 2007-2011.

The following is a list of all organizations reporting to the DOE REMS from 2007-2011. The list provides the Site groupings used in this report as well as the organization reporting code and name.

| Site | Organization Code | Organization Name | Year Reported * | | | | |
|---|---------------------------------------|---|-----------------|------|------|------|------|
| | | | 2007 | 2008 | 2009 | 2010 | 2011 |
| Ames Laboratory | 1000503 | Ames Laboratory (Iowa State) | ● | ● | ● | ● | ● |
| Argonne National Laboratory (ANL) | 1000703 | Argonne National Laboratory | ● | ● | ● | ● | ● |
| Brookhaven National Laboratory (BNL) | 1001003 | Brookhaven National Laboratory | ● | ● | ● | ● | ● |
| DOE Headquarters | 1500000 | DOE Headquarters | | | | | ● |
| | 1504001 | DOE Headquarters | | ● | | | |
| | 1523016 | SPRU-NY (Building remediation) | | | ● | ● | ● |
| Energy Technology Engineering Center | 8001003 | Boeing North America, Inc. - Research | ● | ● | ● | ● | ● |
| Fermi National Accelerator Lab. (FERMI) | 1002503 | Fermilab | ● | ● | ● | ● | ● |
| Hanford | 4700805 | Bechtel National Corporation | ● | ● | ● | ● | ● |
| | 4701001 | DOE, Office of River Protection | ● | ● | ● | ● | ● |
| | 4702004 | Advance Technology Laboratories | ● | ● | ● | ● | ● |
| | 4707104 | Washington River Protection Solutions, LLC | ● | ● | ● | ● | ● |
| | NA-2100 | NNSA - Management and Support Personnel | | ● | ● | ● | ● |
| | NA-2101 | NNSA - Mgmt. & Support Personnel: MELE Assoc. | | | ● | ● | ● |
| | NA-2110 | NNSA - North and South America | | | ● | ● | ● |
| | NA-2120 | NNSA - Europe, Africa and the Middle East | | | ● | ● | ● |
| | NA-2130 | NNSA - Asia and Members of the Former Soviet | | | ● | ● | ● |
| | 7500503 | Battelle - PNNL | ● | ● | ● | ● | ● |
| | 7500605 | Washington Closure Hanford | ● | ● | ● | ● | ● |
| | 7502504 | AdvanceMed Hanford | ● | ● | ● | ● | ● |
| | 7505004 | Flour Hanford, Inc. | ● | ● | ● | ● | ● |
| | 7505005 | Kaiser Engineers Hanford | ● | ● | ● | | |
| | 7505006 | Fluor Northwest Services | ● | ● | ● | | |
| | 7505024 | Duratek Federal Services, Inc. - Hanford | ● | ● | | | |
| | 7505025 | Duratek Federal Services, Inc. | ● | ● | ● | | |
| | 7505044 | NUMATEC Hanford | ● | | | | |
| | 7505055 | Lockheed Martin Services, Inc. | ● | ● | | | |
| | 7505075 | AREVA/COGEMA Engineering Corporation | ● | ● | ● | | |
| 7505214 | Mission Support Alliance (MSA) | | | ● | ● | ● | |
| 7505304 | CH2M Hill Plateau Remediation Company | | ● | ● | ● | ● | |
| 7506001 | DOE-Richland Field Office | ● | ● | ● | ● | ● | |
| Idaho National Laboratory | 3004001 | Idaho Field Office | ● | ● | | ● | |
| | 3004001 | ICP-DOE | | | ● | | |
| | 3004001 | CH2M-WG: INL | | | ● | | |
| | 3004402 | BBWI - AMWTP | | | ● | ● | ● |
| | 3004404 | BBWI Service Subs | | | ● | | |
| | 3005003 | INL - BEA, LLC - Research | | | ● | | ● |
| | 3005004 | INL - BEA, LLC - Services | ● | ● | ● | ● | ● |
| | 3005009 | INL - BEA, LLC - Security | | | | | ● |
| | 3005012 | INL - BEA, LLC - Production | | | | | ● |
| | 3005016 | ICP - BBWI - Construction Subs | ● | ● | | ● | |
| | 3005064 | INL - BEA, Sub - Red Inc. | | | ● | | |
| | 3006002 | INL - CWI - Projects | | | ● | ● | ● |
| | 3006004 | ICP - CWI - Subcontractors | | | ● | ● | ● |
| | 3006005 | ICP - CWI - Support | | | | ● | ● |
| | 3006016 | ICP - CWI - Construction Subs | ● | ● | ● | ● | ● |
| Kansas City Plant | 0531002 | Honeywell FM & T/KC Production | ● | ● | ● | ● | ● |
| Lawrence Berkeley National Lab. (LBNL) | 8003003 | Lawrence Berkeley National Laboratory | ● | ● | ● | ● | |
| Lawrence Livermore National Lab. (LLNL) | 0580403 | Lawrence Livermore National Laboratory | ● | ● | ● | ● | ● |
| | 8004003 | Lawrence Livermore National Laboratory | ● | ● | | ● | ● |
| | 0580701 | LLNL - DOE Site Office | | ● | ● | ● | ● |
| | 0580404 | LLNL Services | | ● | | | |
| | 0580503 | LLNL - Nevada | ● | ● | ● | ● | ● |
| Los Alamos National Lab. (LANL) | 0540001 | NNSA Los Alamos Site Office | ● | ● | ● | ● | ● |
| | 0544003 | Los Alamos National Laboratory | ● | ● | ● | ● | ● |

| Site | Organization Code | Organization Name | Year Reported * | | | | | |
|--|--------------------------|--|---|------|------|------|------|---|
| | | | 2007 | 2008 | 2009 | 2010 | 2011 | |
| | 0544809 | Protection Technologies Los Alamos | ● | ● | ● | ● | ● | |
| | 0544904 | Johnson Controls, Inc. | ● | ● | ● | ● | ● | |
| National Renewable Energy Laboratory | 2806003 | National Renewable Energy Laboratory | ● | ● | ● | ● | ● | |
| Nevada National Security Site | 0501001 | NNSA Service Center | | | | | ● | |
| | 0520001 | NNSA Nevada Site Office | | | | | ● | |
| | 0521104 | Bechtel Nevada - Amador Valley | | | | ● | ● | |
| | 0521204 | Bechtel Nevada - Las Vegas | | | | ● | ● | |
| | 0521304 | Bechtel Nevada - Los Alamos | | | | ● | ● | |
| | 0521405 | Bechtel Nevada - NTS | | | | ● | ● | |
| | 0521416 | Bechtel Nevada - NTS - subcontractors | | | | ● | ● | |
| | 0521503 | Bechtel Nevada - Special Tech Lab. | | | | ● | ● | |
| | 3500000 | Nevada Operations | ● | ● | | | | |
| | 3500000 | National Security Technologies, LLC (NSTec) | | | ● | ● | ● | |
| | 3501204 | Bechtel Nevada - Las Vegas | ● | ● | ● | ● | ● | |
| | 3501405 | Bechtel Nevada - NTS | ● | ● | ● | | | |
| | 3501405 | NSTec - NTS | | | | ● | ● | |
| | 3501416 | Bechtel Nevada - NTS Subcontractors | ● | ● | ● | | | |
| | 3501503 | Bechtel Nevada - Special Tech Laboratory | ● | ● | ● | | | |
| | 3501503 | NSTec - Special Tech. Laboratory | | | | ● | | |
| | 3501604 | Bechtel Nevada - Washington Aerial Measurement | ● | ● | | | | |
| | 3501604 | NSTec - Washington Aerial Measurement | | | ● | ● | | |
| | 3507514 | Nevada Miscellaneous Contractors - NSTec | ● | ● | ● | ● | ● | |
| | 3508004 | Nye County Sheriff - NSTec | ● | ● | ● | ● | ● | |
| | 3508703 | SAIC - NV | | | | | ● | |
| | 3509009 | Wackenhut Services, Inc. - NSTec | ● | ● | ● | ● | ● | |
| | 9700000 | Yucca Mountain Project - NSTec | ● | ● | ● | ● | ● | |
| | New Brunswick Laboratory | 1004031 | New Brunswick Laboratory - Research | ● | ● | ● | ● | ● |
| | Oak Ridge Site | 4004203 | Oak Ridge Inst. For Science & Educ. (ORISE) | ● | ● | ● | ● | ● |
| | | 4004501 | Oak Ridge Office | ● | ● | | ● | ● |
| 4004525 | | SEC Oak Ridge | | | | ● | ● | |
| 4004526 | | LATA Sharp | | | | ● | ● | |
| 4003602 | | UT-Battelle: ORNL-Isotek | ● | ● | ● | ● | ● | |
| 4004602 | | UT-Battelle: Foster Wheeler | ● | ● | ● | ● | ● | |
| 4005104 | | USEC: Oak Ridge, K25 | ● | ● | ● | ● | ● | |
| 4006002 | | Bechtel-Jacobs Co., LLC-ETTP | ● | ● | ● | ● | ● | |
| 4006105 | | UT-Battelle - Materials & Energy Corp. | ● | ● | ● | ● | | |
| 4006503 | | UT-Battelle - ORNL | ● | ● | ● | ● | ● | |
| 4006510 | | Bechtel Jacobs - ORNL | ● | ● | ● | ● | ● | |
| 4007509 | | Wackenhut Services, Inc. - OR Security | ● | ● | | | | |
| 4007509 | | Wackenhut Services | ● | ● | ● | ● | ● | |
| 4008010 | | Bechtel-Jacobs, Y-12 | ● | ● | ● | ● | ● | |
| 4018102 | | BWXT LLC, Y-12 | ● | ● | ● | ● | ● | |
| Paducah Gaseous Diff. Plant (PGDP) | | 4007002 | Swift & Staley, UDS - Paducah | | ● | ● | | |
| | | 4007002 | Swift & Staley Team | | | | ● | |
| | 6203004 | UT-Battelle - Paducah Remediation Services | ● | ● | | | | |
| | 6203004 | Paducah Remediation Services | | | ● | ● | ● | |
| | 6203005 | LATA Kentucky | | | | ● | | |
| | 6203106 | Uranium Disposition Services - Paducah Sub | ● | | | ● | ● | |
| | 6203204 | Swift & Staley Mech Contr, Inc. - Paducah | ● | | | ● | ● | |
| Pantex Plant (PP) | 0510001 | NNSA Amarillo Site Office | | ● | | | | |
| | 0510001 | B & W Pantex - PXSO/NNSA and DOE Couriers | | | ● | ● | ● | |
| | 0514004 | Battelle - Pantex | ● | | | ● | ● | |
| | 0515002 | BWXT - Amarillo | ● | ● | | | | |
| | 0515002 | B & W Pantex | | | ● | ● | ● | |
| | 0515006 | BWXT - Amarillo - Subcontractors | ● | ● | | | | |
| | 0515006 | B & W Pantex - Subcontractors | | | ● | ● | ● | |
| | 0515009 | BWXT - Amarillo - Security Forces | ● | ● | | | | |
| | 0515009 | B & W Pantex - Security Forces | | | ● | ● | ● | |
| Portsmouth Gaseous Diff. Plant (PORTS) | 6202106 | Uranium Disposition Services - Portsmouth Sub | ● | ● | ● | ● | ● | |

| Site | Organization Code | Organization Name | Year Reported * | | | | | |
|--|-------------------------------------|--|------------------------------------|------|------|------|------|---|
| | | | 2007 | 2008 | 2009 | 2010 | 2011 | |
| | 6202204 | Theta Pro2Serve Management Co. - Portsmouth | ● | ● | ● | ● | ● | |
| | 6202304 | LATA/Parralax Portsmouth LLC | ● | ● | ● | ● | ● | |
| Princeton Plasma Physics Laboratory | 1005003 | Princeton Plasma Physics Laboratory | ● | ● | ● | ● | | |
| Sandia National Laboratories (SNL) | 0578003 | Sandia National Laboratories | ● | ● | ● | ● | ● | |
| Savannah River Site (SRS) | 8500505 | Bechtel Construction - SR | | ● | | ● | ● | |
| | 8500516 | Miscellaneous SRS Construction Subs | ● | ● | | ● | ● | |
| | 8501002 | Westinghouse Savannah River Co. | ● | ● | | | | |
| | 8501002 | Savannah River Nuclear Solutions, Inc. | | | ● | ● | ● | |
| | 8501014 | Westinghouse S.R. Subcontractors | ● | ● | | ● | | |
| | 8501042 | SRR Operations | | | | ● | ● | |
| | 8501044 | SRR Service Subs | | | ● | ● | ● | |
| | 8505001 | S.R. Forest Station | ● | | | | | |
| | 8505004 | SRS - WSRC | ● | ● | | | | |
| | 8505004 | Savannah River Nuclear Solutions, Inc. | | | ● | | | |
| | 8505501 | Savannah River Field Office | ● | ● | ● | ● | ● | |
| | 8505504 | Misc. DOE Contractors - SR | | | | ● | ● | |
| | 8505516 | Savannah River Nuclear Solutions, Inc. | | | ● | | | |
| | 8505525 | SRS - WSRC - Construction | ● | ● | | | | |
| | 8505525 | Savannah River Nuclear Solutions, Inc. | | | ● | | ● | |
| | 8505526 | SRS - WSRC - Construction | ● | ● | | | | |
| | 8505526 | Savannah River Nuclear Solutions, Inc. | | | ● | | | |
| | 8505526 | SR Construction - Parsons Subcontractors | | | | ● | ● | |
| | 8507004 | Miscellaneous DOE Contractors - SR | ● | ● | | ● | | |
| | 8509003 | Univ. of Georgia Ecology Laboratories | ● | ● | ● | ● | ● | |
| | 8509504 | Wackenhut Services, Inc. - SRS | ● | ● | ● | | | |
| | 8509504 | Savannah River Nuclear Solutions, Inc. | | | ● | | | |
| | 8509509 | Wackenhut Services, Inc. - SRNS | ● | ● | ● | ● | ● | |
| | 8511002 | Savannah River Nuclear Solutions, Inc. | | | ● | ● | ● | |
| | 8511004 | SRNS Service Subs | | | ● | ● | ● | |
| | 8511005 | SRNS Construction | | | ● | ● | ● | |
| | 8511006 | SRNS Construction Subs | | | ● | ● | ● | |
| | Separations Process Research Unit | 1522005 | DeNuke Services: SPRU LA | | ● | ● | ● | ● |
| | SLAC National Accelerator Facility | 8008003 | Stanford Linear Accelerator Center | ● | ● | ● | ● | ● |
| | | 8009005 | Separation Process Research Unit | ● | | | | |
| Thomas Jefferson National Accelerator Facility | 4004501 | Jefferson Laboratory | | | ● | | | |
| | 4009503 | Thomas Jefferson National Accel. Facility | ● | ● | | ● | ● | |
| | 4009503 | Jefferson Laboratory | | | ● | | | |
| Uranium Mill Tailings Remediation Action Project | 3260645 | Uranium Mill Tailings Remedial Action - Moab | | ● | ● | ● | ● | |
| Waste Isolation Pilot Plant | 0590001 | Waste Isolation Pilot Project (WIPP) | ● | ● | ● | | | |
| | 0590001 | Washington TRU Solutions LLC-WIPP | | | | ● | | |
| | 0593001 | Carlsbad Area Office | ● | | | | | |
| | 0593004 | Carlsbad Area Miscellaneous Contractors | ● | ● | | | | |
| | 0593004 | WIPP Project - Carlsbad Field Office | | | ● | | | |
| | 0701001 | Carlsbad Field Office | | | | ● | ● | |
| | 0702003 | LANL - WIPP | | | | | ● | |
| | 0703104 | Washington TRU Solutions LLC-WIPP | | | | ● | ● | |
| | 0703109 | Santa Fe Protective Services - WIPP | | | | | ● | |
| | 0703124 | WTS - Small Subs | | | | | ● | |
| | 0703114 | WTS Subcontractors - WIPP | | | | ● | ● | |
| 0704003 | Sandia National Laboratories - WIPP | | | | | ● | | |
| West Valley Project | 4539004 | West Valley Nuclear Services, Inc. (WVNS) | ● | | ● | ● | ● | |
| | 4542005 | RMI Titanium Company | | | ● | | | |
| Pittsburg Naval Reactor Office | 6007504 | PNR - BAPL & BPMI-P | ● | ● | ● | ● | ● | |
| | 6008003 | Pittsburg Naval Reactor | ● | ● | ● | | | |
| | 6008003 | PNR - BAPL & BPMI-P | | | | ● | ● | |
| | 6009003 | PNR - Bechtel Bettis, Inc. | ● | ● | ● | | | |
| | 6009003 | Naval Reactors - Idaho | | | | ● | ● | |
| Schenectady Naval Reactor Office | 9004003 | LM-KAPL - Kesselring | ● | ● | ● | | | |
| | 9004003 | Knolls Atomic Power Laboratory | | | | ● | ● | |

| Site | Organization Code | Organization Name | Year Reported * | | | | |
|------|-------------------|--------------------------------|-----------------|------|------|------|------|
| | | | 2007 | 2008 | 2009 | 2010 | 2011 |
| | 9005003 | LM-KAPL - Knolls | ● | ● | ● | | |
| | 9005003 | Knolls Atomic Power Laboratory | | | | ● | ● |
| | 9005004 | LM-KAPL - Knolls Service Subs | ● | ● | ● | | |
| | 9005004 | Knolls Atomic Power Laboratory | | | | ● | ● |

DOE Occupational Radiation Exposure: 2011 Annual Report Exhibit A-3. Facility Type Codes.

The following is a list of Facility Type Codes reported to REMS in accordance with the REMS Reporting Guide. A facility type code is reported with each individual's dose record and indicates the facility type where the majority of the individual's dose was accrued during the monitoring year.

| Facility Type Code | Description |
|--------------------|-------------------------------------|
| 10 | Accelerator |
| 21 | Fuel/Uranium Enrichment |
| 22 | Fuel Fabrication |
| 23 | Fuel Processing |
| 40 | Maintenance and Support (Site-Wide) |
| 50 | Reactor |
| 61 | Research, General |
| 62 | Research, Fusion |
| 70 | Waste Processing/Mgmt. |
| 80 | Weapons Fab. and Testing |
| 99 | Other |

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Exhibit B-1. Site Dose Data - 2009.

| Site | Collective TED (person-rem) | Percent Change - Coll. TED | Number with Meas. Dose | Percent Change - # with Meas. Dose | Avg. Meas. TED (rem) | Percent Change - Avg. Meas. TED | Percentage of Coll. TED above 0.500 rem | Percent Change - Coll. TED above 0.500 rem |
|---|-----------------------------|----------------------------|------------------------|------------------------------------|----------------------|---------------------------------|---|--|
| Ames Laboratory | 0.717 | | 31 | | 0.023 | | | |
| Argonne National Laboratory | 17.610 | 34% ▲ | 137 | 7% ▲ | 0.129 | 25% ▲ | 33% ▲ | -2% ▼ |
| Brookhaven National Laboratory | 5.191 | -4% ▼ | 180 | 21% ▲ | 0.029 | -21% ▼ | | |
| Energy Technology Engineering Center | 0.125 | | 43 | | 0.003 | | | |
| Fermi National Accelerator Laboratory | 18.750 | 22% ▲ | 243 | 46% ▲ | 0.077 | -17% ▼ | 3% ▲ | -58% ▼ |
| Hanford - Hanford Site | 93.149 | 22% ▲ | 1,633 | -8% ▼ | 0.057 | 33% ▲ | 7% ▲ | 945% ▲ |
| Hanford - Office of River Protection | 20.639 | 13% ▲ | 346 | -7% ▼ | 0.060 | 22% ▲ | | |
| Hanford - Pacific Northwest National Laboratory | 15.326 | 38% ▲ | 242 | 7% ▲ | 0.063 | 29% ▲ | 11% ▲ | |
| Idaho National Laboratory | 111.326 | -8% ▼ | 1,808 | -8% ▼ | 0.062 | 0% | 1% ▲ | -77% ▼ |
| Kansas City Plant | 0.525 | | 10 | | 0.053 | | | |
| Lawrence Berkeley National Laboratory | 0.613 | | 14 | | 0.044 | | | |
| Lawrence Livermore National Laboratory | 25.993 | 28% ▲ | 182 | 41% ▲ | 0.143 | -9% ▼ | 67% ▲ | 6% ▲ |
| Los Alamos National Laboratory | 115.733 | 8% ▲ | 1,392 | 14% ▲ | 0.083 | -6% ▼ | 22% ▲ | -26% ▼ |
| National Renewable Energy Laboratory | 0.029 | | 5 | | 0.006 | | | |
| Nevada National Security Site | 5.519 | 6% ▲ | 86 | 15% ▲ | 0.064 | -8% ▼ | | |
| New Brunswick Laboratory | 0.059 | | 3 | | 0.020 | | | |
| Oak Ridge - East Tennessee Technology Park | 0.851 | | 33 | | 0.026 | | | |
| Oak Ridge - Oak Ridge Institute for Science and Education | 0.231 | | 62 | | 0.004 | | | |
| Oak Ridge - Oak Ridge National Laboratory | 46.654 | 9% ▲ | 655 | 33% ▲ | 0.071 | -18% ▼ | 6% ▲ | -55% ▼ |
| Oak Ridge - Y-12 National Security Complex | 61.882 | -14% ▼ | 1,379 | 6% ▲ | 0.045 | -19% ▼ | 7% ▲ | 38% ▲ |
| Paducah Gaseous Diffusion Plant | 1.151 | -10% ▼ | 79 | 80% ▲ | 0.015 | -50% ▼ | | |
| Pantex Plant | 25.158 | 53% ▲ | 302 | 5% ▲ | 0.083 | 45% ▲ | 9% ▲ | |
| Portsmouth Gaseous Diffusion Plant | 1.540 | 10% ▲ | 32 | -11% ▼ | 0.048 | 24% ▲ | | |
| Princeton Plasma Physics Laboratory | 0.786 | | 101 | | 0.008 | | | |
| Sandia National Laboratory | 4.871 | -33% ▼ | 131 | -18% ▼ | 0.037 | -18% ▼ | | |
| Savannah River Site | 108.902 | -14% ▼ | 2,185 | 2% ▲ | 0.050 | -16% ▼ | 2% ▲ | -44% ▼ |
| Separations Process Research Unit | 0.288 | | 10 | | 0.029 | | | |
| SLAC National Accelerator Laboratory | 0.169 | | 6 | | 0.028 | | | |
| Thomas Jefferson National Accelerator Facility | 0.690 | | 27 | | 0.026 | | | |
| Uranium Mill Tailings Remedial Action Project | 3.624 | 4,732% ▲ | 92 | 1214% ▲ | 0.039 | 268% ▲ | | |
| Waste Isolation Pilot Plant | 0.909 | | 68 | | 0.013 | | | |
| West Valley Demonstration Project | 36.985 | 67% ▲ | 230 | 46% ▲ | 0.161 | 14% ▲ | 23% ▲ | |
| Site Office Personnel* | 0.482 | | 10 | | 0.048 | | | |
| Totals | 726.477 | 5% ▲ | 11,757 | 4% ▲ | 0.062 | 1% ▲ | 11% ▲ | 7% ▲ |

* Includes service center personnel from Albuquerque and Oak Ridge, in addition to several smaller facilities not associated with a DOE site.
Note: Boxed values (gray background) indicate the greatest value in each column.

DOE Occupational Radiation Exposure: 2011 Annual Report
Exhibit B-2. Site Dose Data - 2010.

| Site | Collective TED (person-rem) | Percent Change - Coll. TED | Number with Meas. Dose | Percent Change - # with Meas. Dose | Avg. Meas. TED (rem) | Percent Change - Avg. Meas. TED | Percentage of Coll. TED above 0.500 rem | Percent Change - Coll. TED above 0.500 rem |
|---|-----------------------------|----------------------------|------------------------|------------------------------------|----------------------|---------------------------------|---|--|
| Ames Laboratory | 0.907 | | 32 | | 0.028 | | | |
| Argonne National Laboratory | 31.170 | 77% ▲ | 177 | 29% ▲ | 0.176 | 37% ▲ | 51% ▲ | 57% ▲ |
| Brookhaven National Laboratory | 11.529 | 122% ▲ | 214 | 19% ▲ | 0.054 | 87% ▲ | 6% ▲ | |
| Energy Technology Engineering Center | 0.292 | | 54 | | 0.005 | | | |
| Fermi National Accelerator Laboratory | 11.220 | -40% ▼ | 169 | -30% ▼ | 0.066 | -14% ▼ | | |
| Hanford - Hanford Site | 112.522 | 21% ▲ | 1,673 | 2% ▲ | 0.067 | 18% ▲ | 1% ▲ | -92% ▼ |
| Hanford - Office of River Protection | 28.522 | 38% ▲ | 535 | 55% ▲ | 0.053 | -11% ▼ | | |
| Hanford - Pacific Northwest National Laboratory | 27.500 | 79% ▲ | 280 | 16% ▲ | 0.098 | 55% ▲ | 45% ▲ | 320% ▲ |
| Idaho National Laboratory | 130.278 | 17% ▲ | 1,890 | 5% ▲ | 0.069 | 12% ▲ | 5% ▲ | 405% ▲ |
| Kansas City Plant | 0.046 | | 10 | | 0.005 | | | |
| Lawrence Berkeley National Laboratory | 1.097 | 79% ▲ | 16 | 14% ▲ | 0.069 | 57% ▲ | | |
| Lawrence Livermore National Laboratory | 18.214 | -30% ▼ | 144 | -21% ▼ | 0.126 | -11% ▼ | 46% ▲ | -32% ▼ |
| Los Alamos National Laboratory | 125.389 | 8% ▲ | 1,335 | -4% ▼ | 0.094 | 13% ▲ | 24% ▲ | 6% ▲ |
| National Renewable Energy Laboratory | 0.022 | | 3 | | 0.007 | | | |
| Nevada National Security Site | 3.288 | -40% ▼ | 84 | -2% ▼ | 0.039 | -39% ▼ | | |
| New Brunswick Laboratory | 0.037 | | 3 | | 0.012 | | | |
| Oak Ridge - East Tennessee Technology Park | 1.187 | 39% ▲ | 43 | 30% ▲ | 0.028 | 7% ▲ | | |
| Oak Ridge - Oak Ridge Institute for Science and Education | 0.114 | | 56 | | 0.002 | | | |
| Oak Ridge - Oak Ridge National Laboratory | 73.468 | 57% ▲ | 726 | 11% ▲ | 0.101 | 42% ▲ | 10% ▲ | 74% ▲ |
| Oak Ridge - Y-12 National Security Complex | 69.516 | 12% ▲ | 1,635 | 19% ▲ | 0.043 | -5% ▼ | 5% ▲ | -31% ▼ |
| Paducah Gaseous Diffusion Plant | 1.884 | 64% ▲ | 90 | 14% ▲ | 0.021 | 44% ▲ | | |
| Pantex Plant | 26.131 | 4% ▲ | 303 | 0% | 0.086 | 4% ▲ | | |
| Portsmouth Gaseous Diffusion Plant | 2.960 | 92% ▲ | 63 | 97% ▲ | 0.047 | -2% ▼ | | |
| Princeton Plasma Physics Laboratory | 0.663 | | 79 | | 0.008 | | | |
| Sandia National Laboratory | 3.564 | -27% ▼ | 81 | -38% ▼ | 0.044 | 18% ▲ | | |
| Savannah River Site | 179.572 | 65% ▲ | 2,587 | 18% ▲ | 0.069 | 39% ▲ | 18% ▲ | 809% ▲ |
| Separations Process Research Unit | 7.850 | 2,626% ▲ | 74 | 640% ▲ | 0.106 | 268% ▲ | 28% ▲ | |
| SLAC National Accelerator Laboratory | 0.053 | | 4 | | 0.013 | | | |
| Thomas Jefferson National Accelerator Facility | 3.111 | 351% ▲ | 67 | 148% ▲ | 0.046 | 82% ▲ | | |
| Uranium Mill Tailings Remedial Action Project | 31.497 | 769% ▲ | 237 | 158% ▲ | 0.133 | 237% ▲ | | |
| Waste Isolation Pilot Plant | 1.199 | 32% ▲ | 62 | -9% ▼ | 0.019 | 45% ▲ | | |
| West Valley Demonstration Project | 41.873 | 13% ▲ | 308 | 34% ▲ | 0.136 | -15% ▼ | 7% ▲ | -71% ▼ |
| Site Office Personnel* | 0.074 | | 5 | | 0.015 | | | |
| Totals | 946.749 | 30% ▲ | 13,039 | 11% ▲ | 0.073 | 18% ▲ | 13% ▲ | 20% ▲ |

* Includes service center personnel from Albuquerque and Oak Ridge, in addition to several smaller facilities not associated with a DOE site.
 Note: Boxed values (gray background) indicate the greatest value in each column.

DOE Occupational Radiation Exposure: 2011 Annual Report
Exhibit B-3. Site Dose Data - 2011.

| Site | Collective TED (person-rem) | Percent Change - Coll. TED | Number with Meas. Dose | Percent Change - # with Meas. Dose | Avg. Meas. TED (rem) | Percent Change - Avg. Meas. TED | Percentage of Coll. TED above 0.500 rem | Percent Change - Coll. TED above 0.500 rem |
|---|-----------------------------|----------------------------|------------------------|------------------------------------|----------------------|---------------------------------|---|--|
| Ames Laboratory | 0.762 | | 29 | | 0.026 | | | |
| Argonne National Laboratory | 29.420 | -6% ▼ | 176 | -1% ▼ | 0.167 | -5% ▼ | 49% ▲ | -5% ▼ |
| Brookhaven National Laboratory | 12.822 | 11% ▲ | 172 | -20% ▼ | 0.075 | 38% ▲ | 23% ▲ | 300% ▲ |
| Energy Technology Engineering Center | 0.139 | | 47 | | 0.003 | | | |
| Fermi National Accelerator Laboratory | 10.090 | -10% ▼ | 155 | -8% ▼ | 0.065 | -2% ▼ | | |
| Hanford - Hanford Site | 94.691 | -16% ▼ | 1,479 | -12% ▼ | 0.064 | -5% ▼ | | |
| Hanford - Office of River Protection | 25.308 | -11% ▼ | 496 | -7% ▼ | 0.051 | -4% ▼ | 2% ▲ | |
| Hanford - Pacific Northwest National Laboratory | 22.336 | -19% ▼ | 257 | -8% ▼ | 0.087 | -12% ▼ | 22% ▲ | -52% ▼ |
| Idaho National Laboratory | 126.612 | -3% ▼ | 2,385 | 26% ▲ | 0.053 | -23% ▼ | 10% ▲ | 75% ▲ |
| Kansas City Plant | 0.049 | | 2 | | 0.024 | | | |
| Lawrence Berkeley National Laboratory | 0.759 | | 13 | | 0.058 | | | |
| Lawrence Livermore National Laboratory | 16.979 | -7% ▼ | 116 | -19% ▼ | 0.146 | 16% ▲ | 52% ▲ | 15% ▲ |
| Los Alamos National Laboratory | 127.056 | 1% ▲ | 1,459 | 9% ▲ | 0.087 | -7% ▼ | 21% ▲ | -9% ▼ |
| National Renewable Energy Laboratory | 0.017 | | 5 | | 0.003 | | | |
| Nevada National Security Site | 2.743 | -17% ▼ | 78 | -7% ▼ | 0.035 | -10% ▼ | | |
| New Brunswick Laboratory | 0.165 | | 8 | | 0.021 | | | |
| Oak Ridge - East Tennessee Technology Park | 0.830 | | 39 | | 0.021 | | | |
| Oak Ridge - Oak Ridge Institute for Science and Education | 0.211 | | 82 | | 0.003 | | | |
| Oak Ridge - Oak Ridge National Laboratory | 66.252 | -10% ▼ | 714 | -2% ▼ | 0.093 | -8% ▼ | 7% ▲ | -27% ▼ |
| Oak Ridge - Y-12 National Security Complex | 59.055 | -15% ▼ | 1,537 | -6% ▼ | 0.038 | -10% ▼ | 1% ▲ | -80% ▼ |
| Paducah Gaseous Diffusion Plant | 4.038 | 114% ▲ | 78 | -13% ▼ | 0.052 | 147% ▲ | | |
| Pantex Plant | 28.947 | 11% ▲ | 311 | 3% ▲ | 0.093 | 8% ▲ | 6% ▲ | |
| Portsmouth Gaseous Diffusion Plant | 2.279 | -23% ▼ | 47 | -25% ▼ | 0.048 | 3% ▲ | | |
| Princeton Plasma Physics Laboratory | 0.401 | | 53 | | 0.008 | | | |
| Sandia National Laboratory | 6.913 | 94% ▲ | 126 | 56% ▲ | 0.055 | 25% ▲ | | |
| Savannah River Site | 149.967 | -16% ▼ | 2,512 | -3% ▼ | 0.060 | -14% ▼ | 6% ▲ | -69% ▼ |
| Separations Process Research Unit | 0.179 | | 13 | | 0.014 | | | |
| SLAC National Accelerator Laboratory | 0.236 | | 10 | | 0.024 | | | |
| Thomas Jefferson National Accelerator Facility | 6.245 | 101% ▲ | 57 | -15% ▼ | 0.110 | 136% ▲ | 37% ▲ | |
| Uranium Mill Tailings Remedial Action Project | 15.000 | -52% ▼ | 191 | -19% ▼ | 0.079 | -41% ▼ | | |
| Waste Isolation Pilot Plant | 0.476 | | 25 | | 0.019 | | | |
| West Valley Demonstration Project | 51.662 | 23% ▲ | 247 | -20% ▼ | 0.209 | 54% ▲ | 36% ▲ | 442% ▲ |
| Site Office Personnel* | 0.889 | | 38 | | 0.023 | | | |
| Totals | 863.528 | -9% ▼ | 12,957 | -1% ▼ | 0.067 | -8% ▼ | 12% ▲ | -4% ▼ |

* Includes service center personnel from Albuquerque and Oak Ridge, in addition to several smaller facilities not associated with a DOE site.
Note: Boxed values (gray background) indicate the greatest value in each column.

**DOE Occupational Radiation Exposure: 2011 Annual Report
Exhibit B-4. Internal Dose by Site, 2009-2011.**

| Site | No. of Individuals with New Intakes* | | | Collective CED Dose from Intake (person-rem) | | | Average CED | | |
|---|--------------------------------------|----------------|----------------|---|-----------------|-----------------|----------------|----------------|----------------|
| | 2009 | 2010 | 2011 | 2009 | 2010 | 2011 | 2009 | 2010 | 2011 |
| Argonne National Laboratory | 12 | 18 | 4 | 0.240 | 0.527 | 0.111 | 0.020 | 0.029 | 0.028 |
| Brookhaven National Laboratory | 8 | | 1 | 0.136 | | 0.001 | 0.017 | | 0.001 |
| Hanford - Hanford Site | 1 | 8 | 15 | 0.001 | 0.161 | 0.115 | 0.001 | 0.020 | 0.008 |
| Hanford - Pacific Northwest National Laboratory | | 1 | 2 | | 0.001 | 0.027 | | 0.001 | 0.014 |
| Idaho National Laboratory | 15 | 27 | 16 | 0.491 | 1.315 | 2.023 | 0.033 | 0.049 | 0.126 |
| Lawrence Livermore National Laboratory | 8 | 18 | 18 | 0.015 | 0.115 | 0.030 | 0.002 | 0.006 | 0.002 |
| Los Alamos National Laboratory | 31 | 28 | 18 | 0.349 | 0.128 | 0.548 | 0.011 | 0.005 | 0.030 |
| Nevada National Security Site | 4 | | | 0.048 | | | 0.012 | | |
| Oak Ridge - East Tennessee Technology Park | 1 | 7 | 21 | 0.014 | 0.164 | 0.318 | 0.014 | 0.023 | 0.015 |
| Oak Ridge - Oak Ridge National Laboratory | 6 | 1 | 2 | 0.054 | 0.013 | 0.094 | 0.009 | 0.013 | 0.047 ◀ |
| Oak Ridge - Y-12 National Security Complex | 1,126 ◀ | 1,346 ◀ | 1,242 ◀ | 49.205 ◀ | 57.232 ◀ | 44.594 ◀ | 0.044 ◀ | 0.043 | 0.036 |
| Paducah Gaseous Diffusion Plant | 2 | 13 | 13 | 0.089 | 0.408 | 0.479 | 0.044 ◀ | 0.031 | 0.037 |
| Pantex Plant | 21 | 20 | 7 | 0.068 | 0.095 | 0.049 | 0.003 | 0.005 | 0.007 |
| Princeton Plasma Physics Laboratory | 9 | 8 | | 0.070 | 0.026 | | 0.008 | 0.003 | |
| Sandia National Laboratory | | 1 | 1 | | 0.004 | 0.004 | | 0.004 | 0.004 |
| Savannah River Site | 58 | 60 | 61 | 0.382 | 31.954 | 0.325 | 0.007 | 0.533 ◀ | 0.005 |
| Uranium Mill Tailings Remedial Action Project | | 109 | 108 | | 3.743 | 2.279 | | 0.034 | 0.021 |
| Site Office Personnel* | | | 1 | | | 0.015 | | | 0.015 |
| Totals | 1,302 | 1,665 | 1,530 | 51.162 | 95.886 | 51.012 | 0.039 | 0.058 | 0.033 |

*Only includes intakes that occurred during the monitoring year. Individuals may be counted more than once.
Note: Boxed values (gray background) indicate the greatest value in each column.

DOE Occupational Radiation Exposure: 2011 Annual Report
Exhibit B-5. Neutron Dose Distribution by Site, 2011.

| 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 | 162 | | | | | | | | 162 | | | | |
| Argonne National Laboratory | 2,614 | 17 | | | | | | | 2,631 | 17 | 1% | 0.371 | 0.022 |
| Brookhaven National Laboratory | 2,518 | 3 | | | | | | | 2,521 | 3 | 0% | 0.017 | 0.006 |
| Energy Technology Engineering Center | 96 | | | | | | | | 96 | | | | |
| Fermi National Accelerator Laboratory | 1,443 | | | | | | | | 1,443 | | | | |
| Hanford - Hanford Site | 6,643 | 632 | 42 | 4 | | | | | 7,321 | 678 | 9% | 27.935 | 0.041 |
| Hanford - Office of River Protection | 2,134 | 14 | | | | | | | 2,148 | 14 | 1% | 0.433 | 0.031 |
| Hanford - Pacific Northwest National Laboratory | 1,939 | 54 | 4 | 2 | | | | | 1,999 | 60 | 3% | 2.708 | 0.045 |
| Idaho National Laboratory | 7,238 | 157 | 3 | | | | | | 7,398 | 160 | 2% | 4.801 | 0.030 |
| Kansas City Plant | 68 | | | | | | | | 68 | | | | |
| Lawrence Berkeley National Laboratory | 796 | | | | | | | | 796 | | | | |
| Lawrence Livermore National Laboratory | 7,839 | 33 | 9 | 1 | | | | | 7,882 | 43 | 1% | 2.881 | 0.067 |
| Los Alamos National Laboratory | 8,812 | 636 | 131 | 32 | 13 | 3 | | | 9,627 | 815 | 8% | 58.505 | 0.072 |
| National Renewable Energy Laboratory | 14 | | | | | | | | 14 | | | | |
| Nevada National Security Site | 3,039 | 2 | | | | | | | 3,041 | 2 | 0% | 0.118 | 0.059 |
| New Brunswick Laboratory | 67 | | | | | | | | 67 | | | | |
| Oak Ridge - East Tennessee Technology Park | 1,634 | 1 | | | | | | | 1,635 | 1 | 0% | 0.011 | 0.011 |
| Oak Ridge - Oak Ridge Institute for Science and Education | 162 | | | | | | | | 162 | | | | |
| Oak Ridge - Oak Ridge National Laboratory | 9,680 | 228 | 24 | 3 | | | | | 9,935 | 255 | 3% | 12.022 | 0.047 |
| Oak Ridge - Y-12 National Security Complex | 6,953 | 4 | 3 | | | | | | 6,960 | 7 | 0% | 0.416 | 0.059 |
| Paducah Gaseous Diffusion Plant | 1,199 | 23 | 14 | | | | | | 1,236 | 37 | 3% | 2.942 | 0.080 |
| Pantex Plant | 3,336 | 49 | 2 | | | | | | 3,387 | 51 | 2% | 2.420 | 0.047 |
| Portsmouth Gaseous Diffusion Plant | 2,836 | 7 | 3 | | | | | | 2,846 | 10 | 0% | 0.851 | 0.085 |
| Princeton Plasma Physics Laboratory | 366 | | | | | | | | 366 | | | | |
| Sandia National Laboratory | 2,986 | 6 | | | | | | | 2,992 | 6 | 0% | 0.335 | 0.056 |
| Savannah River Site | 7,615 | 188 | 66 | 23 | | | | | 7,892 | 277 | 4% | 26.691 | 0.096 |
| Separations Process Research Unit | 276 | | | | | | | | 276 | | | | |
| SLAC National Accelerator Laboratory | 2,491 | | | | | | | | 2,491 | | | | |
| Thomas Jefferson National Accelerator Facility | 1,671 | | | | | | | | 1,671 | | | | |
| Uranium Mill Tailings Remedial Action Project | 200 | | | | | | | | 200 | | | | |
| Waste Isolation Pilot Plant | 1,030 | 3 | | | | | | | 1,033 | 3 | 0% | 0.044 | 0.015 |
| West Valley Demonstration Project | 559 | | | | | | | | 559 | | | | |
| Site Office Personnel* | 984 | | | | | | | | 984 | | | | |
| Totals | 89,400 | 2,057 | 301 | 65 | 13 | 3 | | | 91,839 | 2,439 | 3% | 143.501 | 0.059 |

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

*Represents the total number of monitoring records. The number of individuals specifically monitored for neutron radiation cannot be determined.

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

**DOE Occupational Radiation Exposure: 2011 Annual Report
Exhibit B-6a. Distribution of TED by Facility Type - 2009.**

Total Effective Dose (TED)

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

| Facility Type | Less than Meas | Meas 0 - 0.10 | 0.10 - 0.25 | 0.25 - 0.50 | 0.50 - 0.75 | 0.75 - 1.00 | 1 - 2 | 2 - 3 | 3 - 4 | 4 - 5 | >5 | Total Monitored | Percent of Monitored with Meas. TED | No. with Meas. TED | Collective TED (Person-rem) | Avg. Meas. TED (rem) |
|---------------------------------|----------------|---------------|--------------|-------------|-------------|-------------|-----------|-------|-------|-------|----|-----------------|-------------------------------------|--------------------|-----------------------------|----------------------|
| Accelerator | 7,673 | 317 | 53 | 17 | 1 | | | | | | | 8,061 | 5% | 388 | 22.804 | 0.059 |
| Fuel/Uranium Enrichment | 92 | 47 | | | | | | | | | | 139 | 34% ◀ | 47 | 0.249 | 0.005 |
| Fuel Processing | 1,059 | 286 | 13 | | | | | | | | | 1,358 | 22% | 299 | 8.920 | 0.030 |
| Maintenance and Support | 13,019 | 2,081 | 357 | 125 | 23 | 12 | 4 | | | | | 15,621 | 17% | 2,602 ◀ | 185.738 ◀ | 0.071 ◀ |
| Reactor | 254 | 33 | 3 | 1 | | | | | | | | 291 | 13% | 37 | 1.669 | 0.045 |
| Research, General | 25,354 | 1,734 | 247 | 102 | 15 | 13 | 4 | | | | | 27,469 ◀ | 8% | 2,115 | 146.738 | 0.069 |
| Research, Fusion | 322 | 103 | | | | | | | | | | 425 | 24% | 103 | 0.808 | 0.008 |
| Waste Processing/Management | 5,977 | 2,036 | 339 | 118 | 18 | 1 | | | | | | 8,489 | 30% | 2,512 | 165.686 | 0.066 |
| Weapons Fabrication and Testing | 8,084 | 1,507 | 206 | 45 | 9 | 1 | | | | | | 9,852 | 18% | 1,768 | 89.981 | 0.051 |
| Other | 13,103 | 1,616 | 180 | 82 | 5 | 1 | 2 | | | | | 14,989 | 13% | 1,886 | 103.884 | 0.055 |
| Totals | 74,937 | 9,760 | 1,398 | 490 | 71 | 28 | 10 | | | | | 86,694 | 14% | 11,757 | 726.477 | 0.062 |

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

**DOE Occupational Radiation Exposure: 2011 Annual Report
Exhibit B-6b. Distribution of TED by Facility Type - 2010.**

Total Effective Dose (TED)

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

| Facility Type | Less than Meas | Meas 0 - 0.10 | 0.10 - 0.25 | 0.25 - 0.50 | 0.50 - 0.75 | 0.75 - 1.00 | 1 - 2 | 2 - 3 | 3 - 4 | 4 - 5 | >5 | Total Monitored | Percent of Monitored with Meas. TED | No. with Meas. TED | Collective TED (Person-rem) | Avg. Meas. TED (rem) |
|---------------------------------|----------------|---------------|--------------|-------------|-------------|-------------|----------|-------|-------|-------|----------|-----------------|-------------------------------------|--------------------|-----------------------------|----------------------|
| Accelerator | 6,673 | 289 | 37 | 12 | | | | | | | | 7,011 | 5% | 338 | 17.227 | 0.051 |
| Fuel/Uranium Enrichment | 109 | 31 | | | | | | | | | | 140 | 22% | 31 | 0.231 | 0.007 |
| Fuel Processing | 791 | 263 | 17 | 3 | | | | | | | | 1,074 | 26% | 283 | 11.046 | 0.039 |
| Maintenance and Support | 12,986 | 1,986 | 431 | 155 | 38 | 5 | 1 | | | | | 15,602 | 17% | 2,616 | 212.935 | 0.081 |
| Reactor | 206 | 33 | 16 | 10 | 1 | | | | | | | 266 | 23% | 60 | 7.317 | 0.122 |
| Research, General | 32,510 | 2,435 | 402 | 163 | 42 | 15 | 7 | | | | | 35,574 | 9% | 3,064 | 235.673 | 0.077 |
| Research, Fusion | 344 | 80 | | | | | | | | | | 424 | 19% | 80 | 0.683 | 0.009 |
| Waste Processing/Management | 7,015 | 2,550 | 621 | 265 | 18 | | | | | | 1 | 10,470 | 33% | 3,455 | 307.818 | 0.089 |
| Weapons Fabrication and Testing | 9,005 | 1,730 | 229 | 52 | 1 | 1 | 1 | | | | | 11,019 | 18% | 2,014 | 96.824 | 0.048 |
| Other | 9,388 | 955 | 105 | 35 | 1 | 2 | | | | | | 10,486 | 10% | 1,098 | 56.995 | 0.052 |
| Totals | 79,027 | 10,352 | 1,858 | 695 | 101 | 23 | 9 | | | | 1 | 92,066 | 14% | 13,039 | 946.749 | 0.073 |

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

DOE Occupational Radiation Exposure: 2011 Annual Report
 Exhibit B-6c. Distribution of TED by Facility Type - 2011.

Total Effective Dose (TED)

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

| Facility Type | Less than Meas | Meas 0 - 0.10 | 0.10 - 0.25 | 0.25 - 0.50 | 0.50 - 0.75 | 0.75 - 1.00 | 1 - 2 | 2 - 3 | 3 - 4 | 4 - 5 | >5 | Total Monitored | Percent of Monitored with Meas. TED | No. with Meas. TED | Collective TED (Person-rem) | Avg. Meas. TED (rem) |
|---------------------------------|----------------|---------------|--------------|-------------|-------------|-------------|-----------|-------|-------|-------|----|-----------------|-------------------------------------|--------------------|-----------------------------|----------------------|
| Accelerator | 7,108 | 240 | 47 | 13 | 4 | | | | | | | 7,412 | 4% | 304 | 19,588 | 0.064 |
| Fuel Processing | 672 | 222 | 11 | | | | | | | | | 905 | 26% | 233 | 7,874 | 0.034 |
| Maintenance and Support | 12,717 | 2,054 | 430 | 148 | 16 | 17 | 2 | | | | | 15,384 | 17% | 2,667 | 209,437 | 0.079 |
| Reactor | 157 | 33 | 14 | 11 | 2 | 2 | | | | | | 219 | 28% | 62 | 10,229 | 0.165 ◀ |
| Research, General | 30,616 | 2,586 | 362 | 126 | 23 | 12 | 9 | | | | | 33,734 ◀ | 9% | 3,118 ◀ | 201,778 | 0.065 |
| Research, Fusion | 362 | 55 | | | | | | | | | | 417 | 13% | 55 | 0,434 | 0.008 |
| Waste Processing/Management | 6,437 | 2,203 | 538 | 185 | 48 | 10 | | | | | | 9,421 | 32% ◀ | 2,984 | 253,700 ◀ | 0.085 |
| Weapons Fabrication and Testing | 9,407 | 1,644 | 200 | 47 | 4 | | | | | | | 11,302 | 17% | 1,895 | 88,688 | 0.047 |
| Other | 11,406 | 1,470 | 133 | 34 | 2 | | | | | | | 13,045 | 13% | 1,639 | 71,800 | 0.044 |
| Totals | 78,882 | 10,507 | 1,735 | 564 | 99 | 41 | 11 | | | | | 91,839 | 14% | 12,957 | 863,528 | 0.067 |

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

DOE Occupational Radiation Exposure: 2011 Annual Report
Exhibit B-7a. Collective TED by Site and Facility Type - 2009.

| Site | Accelerator | Fuel/Uranium Enrichment | Fuel Fabrication | Fuel Processing | Maintenance and Support | Reactor | Research, General | Research, Fusion | Waste Processing/Management | Weapons Fabrication and Testing | Other | Totals |
|---|---------------|-------------------------|------------------|-----------------|-------------------------|--------------|-------------------|------------------|-----------------------------|---------------------------------|----------------|----------------|
| Ames Laboratory | | | | | | | 0.717 | | | | | 0.717 |
| Argonne National Laboratory | | | | | | | 2.018 | | | | 15.592 | 17.610 |
| Brookhaven National Laboratory | 2.295 | | | | 1.770 | 0.280 | 0.336 | | 0.510 | | | 5.191 |
| Energy Technology Engineering Center | | | | | | | | | | | 0.125 | 0.125 |
| Fermi National Accelerator Laboratory | 18.750 | | | | | | | | | | | 18.750 |
| Hanford - Hanford Site | | | | | 63.848 | | | | | | 29.301 | 93.149 |
| Hanford - Office of River Protection | | | | | 1.518 | | | | 8.760 | | 10.361 | 20.639 |
| Hanford - Pacific Northwest National Laboratory | | | | | 0.161 | | 10.001 | | | | 5.164 | 15.326 |
| Idaho National Laboratory | | | | | | | 45.917 | | 28.817 | | 36.592 | 111.326 |
| Kansas City Plant | | | | | | | | | | 0.525 | | 0.525 |
| Lawrence Berkeley National Laboratory | | | | | | | 0.613 | | | | | 0.613 |
| Lawrence Livermore National Laboratory | | | | | | | 25.993 | | | | | 25.993 |
| Los Alamos National Laboratory | 0.430 | | | | 107.657 | | 3.504 | | 0.007 | | 4.135 | 115.733 |
| National Renewable Energy Laboratory | | | | | | | 0.029 | | | | | 0.029 |
| Nevada National Security Site | | | | | 5.519 | | | | | | | 5.519 |
| New Brunswick Laboratory | | | | | | | | | | | 0.059 | 0.059 |
| Oak Ridge - East Tennessee Technology Park | | | | | | | 0.851 | | | | | 0.851 |
| Oak Ridge - Oak Ridge Institute for Science and Education | | | | | | | 0.231 | | | | | 0.231 |
| Oak Ridge - Oak Ridge National Laboratory | | | | | | | 46.654 | | | | | 46.654 |
| Oak Ridge - Y-12 National Security Complex | | | | | | | 0.026 | | | 61.856 | | 61.882 |
| Paducah Gaseous Diffusion Plant | | 0.249 | | | | | 0.167 | | 0.735 | | | 1.151 |
| Pantex Plant | | | | | | | | | | 25.158 | | 25.158 |
| Portsmouth Gaseous Diffusion Plant | | | | | | | 1.540 | | | | | 1.540 |
| Princeton Plasma Physics Laboratory | | | | | | | | 0.786 | | | | 0.786 |
| Sandia National Laboratory | 0.470 | | | | 0.391 | 1.389 | 0.210 | 0.022 | 0.237 | 1.994 | 0.158 | 4.871 |
| Savannah River Site | | | | 8.920 | 4.874 | | 7.449 | | 84.814 | 0.448 | 2.397 | 108.902 |
| SLAC National Accelerator Laboratory | 0.169 | | | | | | | | | | | 0.169 |
| Separations Process Research Unit | | | | | | | | | 0.288 | | | 0.288 |
| Thomas Jefferson National Accelerator Facility | 0.690 | | | | | | | | | | | 0.690 |
| Uranium Mill Tailings Remedial Action Project | | | | | | | | | 3.624 | | | 3.624 |
| Waste Isolation Pilot Plant | | | | | | | | | 0.909 | | | 0.909 |
| West Valley Demonstration Project | | | | | | | | | 36.985 | | | 36.985 |
| Site Office Personnel* | | | | | | | 0.482 | | | | | 0.482 |
| Totals | 22.804 | 0.249 | | 8.920 | 185.738 | 1.669 | 146.738 | 0.808 | 165.686 | 89.981 | 103.884 | 726.477 |

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

DOE Occupational Radiation Exposure: 2011 Annual Report
Exhibit B-7b. Collective TED by Site and Facility Type - 2010.

| Site | Accelerator | Fuel/Uranium Enrichment | Fuel Fabrication | Fuel Processing | Maintenance and Support | Reactor | Research, General | Research, Fusion | Waste Processing/Management | Weapons Fabrication and Testing | Other | Totals |
|---|---------------|-------------------------|------------------|-----------------|-------------------------|--------------|-------------------|------------------|-----------------------------|---------------------------------|---------------|----------------|
| Ames Laboratory | | | | | | | 0.907 | | | | | 0.907 |
| Argonne National Laboratory | | | | | | | 31.170 | | | | | 31.170 |
| Brookhaven National Laboratory | 2.281 | | | | 2.166 | 5.109 ◀ | 0.270 | | 1.703 | | | 11.529 |
| Energy Technology Engineering Center | | | | | | | | | | | 0.292 | 0.292 |
| Fermi National Accelerator Laboratory | 11.220 ◀ | | | | | | | | | | | 11.220 |
| Hanford - Hanford Site | | | | | 80.093 | | | | | | 32.429 ◀ | 112.522 |
| Hanford - Office of River Protection | | | | | 0.730 | | | | 15.963 | | 11.829 | 28.522 |
| Hanford - Pacific Northwest National Laboratory | | | | | 0.133 | | 20.349 | | | | 7.018 | 27.500 |
| Idaho National Laboratory | | | | | | | 72.716 | | 57.562 | | | 130.278 |
| Kansas City Plant | | | | | | | | | | 0.046 | | 0.046 |
| Lawrence Berkeley National Laboratory | | | | | | | 1.097 | | | | | 1.097 |
| Lawrence Livermore National Laboratory | | | | | | | 18.214 | | | | | 18.214 |
| Los Alamos National Laboratory | 0.479 | | | | 121.051 ◀ | | 2.339 | | | | 1.520 | 125.389 |
| National Renewable Energy Laboratory | | | | | | | 0.022 | | | | | 0.022 |
| Nevada National Security Site | | | | | 2.999 | | | | | | | 2.999 |
| New Brunswick Laboratory | | | | | | | | | | | 0.037 | 0.037 |
| Oak Ridge - East Tennessee Technology Park | | | | | | | 1.187 | | | | | 1.187 |
| Oak Ridge - Oak Ridge Institute for Science and Education | | | | | | | 0.114 | | | | | 0.114 |
| Oak Ridge - Oak Ridge National Laboratory | | | | | | | 73.468 ◀ | | | | | 73.468 |
| Oak Ridge - Y-12 National Security Complex | | | | | | | 0.001 | | | 69.515 ◀ | | 69.516 |
| Paducah Gaseous Diffusion Plant | | 0.231 ◀ | | | | | 1.036 | | 0.617 | | | 1.884 |
| Pantex Plant | | | | | | | | | | 26.131 | | 26.131 |
| Portsmouth Gaseous Diffusion Plant | | | | | | | 2.960 | | | | | 2.960 |
| Princeton Plasma Physics Laboratory | | | | | | | | 0.663 ◀ | | | | 0.663 |
| Sandia National Laboratory | 0.083 | | | | 0.059 | 2.208 | 0.215 | 0.02 | 0.231 | 0.462 | 0.286 | 3.564 |
| Savannah River Site | | | | 11.046 ◀ | 5.415 | | 9.534 | | 149.323 ◀ | 0.67 | 3.584 | 179.572 ◀ |
| Separations Process Research Unit | | | | | | | | | 7.850 | | | 7.850 |
| SLAC National Accelerator Laboratory | 0.053 | | | | | | | | | | | 0.053 |
| Thomas Jefferson National Accelerator Facility | 3.111 | | | | | | | | | | | 3.111 |
| Uranium Mill Tailings Remedial Action Project | | | | | | | | | 31.497 | | | 31.497 |
| West Valley Demonstration Project | | | | | | | | | 41.873 | | | 41.873 |
| Site Office Personnel* | | | | | 0.289 | | 0.074 | | 1.199 | | | 1.562 |
| Totals | 17.227 | 0.231 | | 11.046 | 212.935 | 7.317 | 235.673 | 0.683 | 307.818 | 96.824 | 56.995 | 946.749 |

* Includes service center personnel from Albuquerque and Oak Ridge.

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

DOE Occupational Radiation Exposure: 2011 Annual Report
Exhibit B-7c. Collective TED by Site and Facility Type - 2011.

| Site | Accelerator | Fuel/Uranium Enrichment | Fuel Fabrication | Fuel Processing | Maintenance and Support | Reactor | Research, General | Research, Fusion | Waste Processing/Management | Weapons Fabrication and Testing | Other | Totals |
|---|---------------|-------------------------|------------------|-----------------|-------------------------|---------------|-------------------|------------------|-----------------------------|---------------------------------|---------------|----------------|
| Ames Laboratory | | | | | | | 0.762 | | | | | 0.762 |
| Argonne National Laboratory | | | | | | | 29.420 | | | | | 29.420 |
| Brookhaven National Laboratory | 2.591 | | | | 2.435 | 6.976 | 0.202 | | 0.618 | | | 12.822 |
| Energy Technology Engineering Center | | | | | | | | | | | 0.139 | 0.139 |
| Fermi National Accelerator Laboratory | 10.090 | | | | | | | | | | | 10.090 |
| Hanford - Hanford Site | | | | | 73.676 | | 0.028 | | | | 20.987 | 94.691 |
| Hanford - Office of River Protection | | | | | 0.317 | | | | 11.266 | | 13.725 | 25.308 |
| Hanford - Pacific Northwest National Laboratory | | | | | 0.366 | | 16.200 | | | | 5.77 | 22.336 |
| Idaho National Laboratory | | | | | | | 51.794 | | 48.841 | | 25.977 | 126.612 |
| Kansas City Plant | | | | | | | | | | 0.049 | | 0.049 |
| Lawrence Berkeley National Laboratory | | | | | | | 0.759 | | | | | 0.759 |
| Lawrence Livermore National Laboratory | | | | | | | 16.979 | | | | | 16.979 |
| Los Alamos National Laboratory | 0.079 | | | | 123.900 | | 1.444 | | | | 1.633 | 127.056 |
| National Renewable Energy Laboratory | | | | | | | 0.017 | | | | | 0.017 |
| Nevada National Security Site | | | | | 2.743 | | | | | | | 2.743 |
| New Brunswick Laboratory | | | | | | | | | | | 0.165 | 0.165 |
| Oak Ridge - East Tennessee Technology Park | | | | | | | 0.830 | | | | | 0.830 |
| Oak Ridge - Oak Ridge Institute for Science and Education | | | | | | | 0.211 | | | | | 0.211 |
| Oak Ridge - Oak Ridge National Laboratory | | | | | | | 66.252 | | | | | 66.252 |
| Oak Ridge - Y-12 National Security Complex | | | | | | | 0.018 | | | 59.037 | | 59.055 |
| Paducah Gaseous Diffusion Plant | | | | | | | 4.038 | | | | | 4.038 |
| Pantex Plant | | | | | | | | | | 28.947 | | 28.947 |
| Portsmouth Gaseous Diffusion Plant | | | | | | | 2.279 | | | | | 2.279 |
| Princeton Plasma Physics Laboratory | | | | | | | | 0.401 | | | | 0.401 |
| Sandia National Laboratory | 0.347 | | | | 0.195 | 3.253 | 0.492 | 0.033 | 1.347 | 0.235 | 1.011 | 6.913 |
| Savannah River Site | | | | 7.874 | 5.805 | | 9.164 | | 124.311 | 0.42 | 2.393 | 149.967 |
| Separations Process Research Unit | | | | | | | | | 0.179 | | | 0.179 |
| SLAC National Accelerator Laboratory | 0.236 | | | | | | | | | | | 0.236 |
| Thomas Jefferson National Accelerator Facility | 6.245 | | | | | | | | | | | 6.245 |
| Uranium Mill Tailings Remedial Action Project | | | | | | | | | 15.000 | | | 15.000 |
| Waste Isolation Pilot Plant | | | | | | | | | 0.476 | | | 0.476 |
| West Valley Demonstration Project | | | | | | | | | 51.662 | | | 51.662 |
| Site Office Personnel* | | | | | | | 0.889 | | | | | 0.889 |
| Totals | 19.588 | | | 7.874 | 209.437 | 10.229 | 201.778 | 0.434 | 253.700 | 88.688 | 71.800 | 863.528 |

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

DOE Occupational Radiation Exposure: 2011 Annual Report
Exhibit B-8. Distribution of TED by Facility Type Listed in Descending Order of Average Measurable TED for Accelerator Facilities, 2011.

ACCELERATORS

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

| Site/Contractor | Less than Meas | Meas 0 - 0.10 | 0.10 - 0.25 | 0.25 - 0.50 | 0.50 - 0.75 | 0.75 - 1.00 | 1 - 2 | 2 - 3 | 3 - 4 | 4 - 5 | >5 | Total Monitored | Percent of Monitored with Meas. TED | No. with Meas. TED | Collective TED (Person-rem) | Avg. Meas. TED (rem) |
|--------------------------------------|----------------|---------------|-------------|-------------|-------------|-------------|-------|-------|-------|-------|----|-----------------|-------------------------------------|--------------------|-----------------------------|----------------------|
| Thomas Jefferson Natl. Accel. Facil. | 1,614 | 39 | 9 | 5 | 4 | | | | | | | 1,671 | 3% | 57 | 6.245 | 0.110 ◀ |
| Fermi National Accelerator Lab | 1,288 | 119 | 28 | 8 | | | | | | | | 1,443 | 11% ◀ | 155 ◀ | 10.090 ◀ | 0.065 |
| Sandia National Laboratory | 468 | 8 | 1 | | | | | | | | | 477 | 2% | 9 | 0.347 | 0.039 |
| Brookhaven National Laboratory | 1,192 | 61 | 9 | | | | | | | | | 1,262 | 6% | 70 | 2.591 | 0.037 |
| Los Alamos National Laboratory | 53 | 3 | | | | | | | | | | 56 | 5% | 3 | 0.079 | 0.026 |
| Stanford Linear Accelerator Center | 2,481 | 10 | | | | | | | | | | 2,491 ◀ | 0% | 10 | 0.236 | 0.024 |
| Battelle - PNNL | 1 | | | | | | | | | | | 1 | 0% | 0 | 0.000 | 0.000 |
| Oak Ridge Office | 11 | | | | | | | | | | | 11 | 0% | 0 | 0.000 | 0.000 |
| Totals | 7,108 | 240 | 47 | 13 | 4 | | | | | | | 7,412 | 4% | 304 | 19.588 | 0.064 |

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

DOE Occupational Radiation Exposure: 2011 Annual Report

Exhibit B-9. Distribution of TED by Facility Type Listed in Descending Order of Average Measurable TED for Fuel Facilities, 2011.

FUEL FACILITIES

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

| Site/Contractor | Less than Meas. | Meas. 0 - 0.10 | 0.10 - 0.25 | 0.25 - 0.50 | 0.50 - 0.75 | 0.75 - 1.00 | 1 - 2 | 2 - 3 | 3 - 4 | 4 - 5 | >5 | Total Monitored | Percent of Monitored with Meas. TED | No. with Meas. TED | Collective TED (Person-rem) | Avg. Meas. TED (rem) |
|------------------------------------|-----------------|----------------|-------------|-------------|-------------|-------------|-------|-------|-------|-------|----|-----------------|-------------------------------------|--------------------|-----------------------------|----------------------|
| ENRICHMENT | | | | | | | | | | | | | | | | |
| FABRICATION | | | | | | | | | | | | | | | | |
| PROCESSING | | | | | | | | | | | | | | | | |
| SRNS Construction Subs | 2 | 1 | | | | | | | | | | 3 | 33% ◀ | 1 | 0.054 | 0.054 ◀ |
| Savannah River Nuclear Solutions | 425 | 186 | 11 | | | | | | | | | 622 ◀ | 32% | 197 ◀ | 7.086 ◀ | 0.036 |
| SRNS Service Subs | 52 | 9 | | | | | | | | | | 61 | 15% | 9 | 0.242 | 0.027 |
| SRNS Construction | 69 | 18 | | | | | | | | | | 87 | 21% | 18 | 0.415 | 0.023 |
| Misc. S.R.S. Const. Subcontractors | 2 | 1 | | | | | | | | | | 3 | 33% ◀ | 1 | 0.015 | 0.015 |
| Misc. DOE Contractors - SR | 7 | 1 | | | | | | | | | | 8 | 13% | 1 | 0.011 | 0.011 |
| SRR Operations | 12 | 2 | | | | | | | | | | 14 | 14% | 2 | 0.022 | 0.011 |
| Wackenhut Services Inc. - SR | 76 | 3 | | | | | | | | | | 79 | 4% | 3 | 0.024 | 0.008 |
| Savannah River Field Office | 26 | 1 | | | | | | | | | | 27 | 4% | 1 | 0.005 | 0.005 |
| Bechtel Construction - SR | 1 | | | | | | | | | | | 1 | 0% | 0 | 0.000 | 0.000 |
| Totals | 672 | 222 | 11 | | | | | | | | | 905 | 26% | 233 | 7.874 | 0.034 |

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

DOE Occupational Radiation Exposure: 2011 Annual Report

Exhibit B-10. Distribution of TED by Facility Type Listed in Descending Order of Average Measurable TED for Maintenance and Support, 2011.

| MAINTENANCE AND SUPPORT | | | | | | | | | | | | | | | | |
|--|----------------|---------------|-------------|-------------|-------------|-------------|----------|-------|-------|-------|----|-----------------|-------------------------------------|--------------------|-----------------------------|----------------------|
| Number of Individuals Receiving Radiation Doses in Each Dose Range (rem) | | | | | | | | | | | | | | | | |
| Site/Contractor | Less than Meas | Meas 0 - 0.10 | 0.10 - 0.25 | 0.25 - 0.50 | 0.50 - 0.75 | 0.75 - 1.00 | 1 - 2 | 2 - 3 | 3 - 4 | 4 - 5 | >5 | Total Monitored | Percent of Monitored with Meas. TED | No. with Meas. TED | Collective TED (Person-rem) | Avg. Meas. TED (rem) |
| Fluor Hanford Inc.. | 1 | | 1 | | | | | | | | | 2 | 50% | 1 | 0.156 | 0.156 |
| Los Alamos National Laboratory | 5,007 | 1,003 | 222 | 94 | 16 | 17 | 2 | | | | | 6,361 | 21% | 1,354 | 123.167 | 0.091 |
| CH2M HILL Plateau Remediation Company (Hanford) | 1,145 | 580 | 178 | 51 | | | | | | | | 1,954 | 41% | 809 | 68.255 | 0.084 |
| SRR Operations | 5 | 12 | 5 | 1 | | | | | | | | 23 | 78% | 18 | 1.497 | 0.083 |
| Brookhaven National Laboratory | 1,019 | 52 | 4 | 2 | | | | | | | | 1,077 | 5% | 58 | 2.435 | 0.042 |
| Bechtel Construction - SR | 3 | 10 | 2 | | | | | | | | | 15 | 80% | 12 | 0.492 | 0.041 |
| Bechtel Nevada - Las Vegas | 929 | 49 | 1 | | | | | | | | | 979 | 5% | 50 | 1.969 | 0.039 |
| Battelle - PNNL | 44 | 9 | 1 | | | | | | | | | 54 | 19% | 10 | 0.366 | 0.037 |
| Mission Support Alliance (MSA) | 1,245 | 134 | 8 | | | | | | | | | 1,387 | 10% | 142 | 5.265 | 0.037 |
| Savannah River Nuclear Solutions | 127 | 94 | 8 | | | | | | | | | 229 | 45% | 102 | 3.603 | 0.035 |
| Bechtel Nevada - NTS | 1,158 | 25 | | | | | | | | | | 1,183 | 2% | 25 | 0.718 | 0.029 |
| CH2M HILL Hanford Group Inc. | 65 | 9 | | | | | | | | | | 74 | 12% | 9 | 0.250 | 0.028 |
| SRNS Construction | 19 | 5 | | | | | | | | | | 24 | 21% | 5 | 0.127 | 0.025 |
| Sandia National Laboratory | 455 | 9 | | | | | | | | | | 464 | 2% | 9 | 0.195 | 0.022 |
| Bechtel Nevada - Los Alamos | 16 | 2 | | | | | | | | | | 18 | 11% | 2 | 0.039 | 0.020 |
| SRNS Service Subs | 41 | 4 | | | | | | | | | | 45 | 9% | 4 | 0.073 | 0.018 |
| Wackenhut Services Inc. - NV | 340 | 1 | | | | | | | | | | 341 | 0% | 1 | 0.017 | 0.017 |
| NNSA Los Alamos Site Office | 106 | 14 | | | | | | | | | | 120 | 12% | 14 | 0.210 | 0.015 |
| Protection Technologies Los Alamos | 306 | 34 | | | | | | | | | | 340 | 10% | 34 | 0.516 | 0.015 |
| Advance Technology Laboratories | 27 | 5 | | | | | | | | | | 32 | 16% | 5 | 0.067 | 0.013 |
| Johnson Controls Inc. | 36 | 1 | | | | | | | | | | 37 | 3% | 1 | 0.007 | 0.007 |
| Misc. DOE Contractors - SR | 1 | 1 | | | | | | | | | | 2 | 50% | 1 | 0.007 | 0.007 |
| SRNS Construction Subs | 4 | 1 | | | | | | | | | | 5 | 20% | 1 | 0.006 | 0.006 |
| Battelle - Pantex | 14 | | | | | | | | | | | 14 | 0% | 0 | 0.000 | 0.000 |
| Bechtel Hanford | 1 | | | | | | | | | | | 1 | 0% | 0 | 0.000 | 0.000 |
| Bechtel Nevada - Amador Valley | 5 | | | | | | | | | | | 5 | 0% | 0 | 0.000 | 0.000 |
| Bechtel Nevada - NTS - subcontractors | 39 | | | | | | | | | | | 39 | 0% | 0 | 0.000 | 0.000 |
| Bechtel Nevada - Special Tech. Lab. | 27 | | | | | | | | | | | 27 | 0% | 0 | 0.000 | 0.000 |
| DOE - Richland Field Office | 5 | | | | | | | | | | | 5 | 0% | 0 | 0.000 | 0.000 |
| DOE Headquarters | 49 | | | | | | | | | | | 49 | 0% | 0 | 0.000 | 0.000 |
| Lawrence Livermore National Laboratory | 1 | | | | | | | | | | | 1 | 0% | 0 | 0.000 | 0.000 |
| Nevada Miscellaneous Contractors | 29 | | | | | | | | | | | 29 | 0% | 0 | 0.000 | 0.000 |
| Nevada Operations | 247 | | | | | | | | | | | 247 | 0% | 0 | 0.000 | 0.000 |
| NNSA Nevada Site Office | 162 | | | | | | | | | | | 162 | 0% | 0 | 0.000 | 0.000 |
| NNSA Service Center | 13 | | | | | | | | | | | 13 | 0% | 0 | 0.000 | 0.000 |
| Nye County Sheriff | 5 | | | | | | | | | | | 5 | 0% | 0 | 0.000 | 0.000 |
| Savannah River Field Office | 5 | | | | | | | | | | | 5 | 0% | 0 | 0.000 | 0.000 |
| Science Applications Intl Corp. - NV | 1 | | | | | | | | | | | 1 | 0% | 0 | 0.000 | 0.000 |
| SR construction - Parsons | 1 | | | | | | | | | | | 1 | 0% | 0 | 0.000 | 0.000 |
| SRR Service Subs | 1 | | | | | | | | | | | 1 | 0% | 0 | 0.000 | 0.000 |
| UT-Battelle: ORNL | 4 | | | | | | | | | | | 4 | 0% | 0 | 0.000 | 0.000 |
| Westinghouse Savannah River Co. | 4 | | | | | | | | | | | 4 | 0% | 0 | 0.000 | 0.000 |
| Yucca Mountain Project | 5 | | | | | | | | | | | 5 | 0% | 0 | 0.000 | 0.000 |
| Totals | 12,717 | 2,054 | 430 | 148 | 16 | 17 | 2 | | | | | 15,384 | 17% | 2,667 | 209.437 | 0.079 |

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

DOE Occupational Radiation Exposure: 2011 Annual Report

Exhibit B-11. Distribution of TED by Facility Type Listed in Descending Order of Average Measurable TED for Reactor Facilities, 2011.

REACTOR FACILITIES

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

| Site/Contractor | Less than Meas | Meas 0 - 0.10 | 0.10 - 0.25 | 0.25 - 0.50 | 0.50 - 0.75 | 0.75 - 1.00 | 1 - 2 | 2 - 3 | 3 - 4 | 4 - 5 | >5 | Total Monitored | Percent of Monitored with Meas. TED | No. with Meas. TED | Collective TED (Person-rem) | Avg. Meas. TED (rem) |
|--------------------------------|----------------|---------------|-------------|-------------|-------------|-------------|-------|-------|-------|-------|----|-----------------|-------------------------------------|--------------------|-----------------------------|----------------------|
| Brookhaven National Laboratory | 96 | 11 | 7 | 7 | 2 | 2 | | | | | | 125 | 23% | 29 | 6.976 | 0.241 |
| Sandia National Laboratory | 59 | 22 | 7 | 4 | | | | | | | | 92 | 36% | 33 | 3.253 | 0.099 |
| Battelle - PNNL | 1 | | | | | | | | | | | 1 | 0% | 0 | 0.000 | 0.000 |
| Los Alamos National Laboratory | 1 | | | | | | | | | | | 1 | 0% | 0 | 0.000 | 0.000 |
| Totals | 157 | 33 | 14 | 11 | 2 | 2 | | | | | | 219 | 28% | 62 | 10.229 | 0.165 |

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

DOE Occupational Radiation Exposure: 2011 Annual Report

Exhibit B-12. Distribution of TED by Facility Type Listed in Descending Order of Average Measurable TED for Research, General, 2011.

| RESEARCH, GENERAL | | | | | | | | | | | | | | | | |
|--|----------------|---------------|-------------|-------------|-------------|-------------|----------|-------|-------|-------|----|-----------------|-------------------------------------|--------------------|-----------------------------|----------------------|
| Number of Individuals Receiving Radiation Doses in Each Dose Range (rem) | | | | | | | | | | | | | | | | |
| Site/Contractor | Less than Meas | Meas 0 - 0.10 | 0.10 - 0.25 | 0.25 - 0.50 | 0.50 - 0.75 | 0.75 - 1.00 | 1 - 2 | 2 - 3 | 3 - 4 | 4 - 5 | >5 | Total Monitored | Percent of Monitored with Meas. TED | No. with Meas. TED | Collective TED (Person-rem) | Avg. Meas. TED (rem) |
| Los Alamos National Laboratory | 74 | 5 | | | 2 | | | | | | | 81 | 9% | 7 | 1.444 | 0.206 |
| Argonne National Laboratory | 2,455 | 108 | 37 | 15 | 6 | 4 | 6 | | | | | 2,631 | 7% | 176 | 29.420 | 0.167 |
| Lawrence Livermore National Laboratory | 7,426 | 78 | 16 | 9 | 5 | 4 | 2 | | | | | 7,540 | 2% | 114 | 16.819 | 0.148 |
| Battelle - PNNL | 562 | 94 | 21 | 16 | 5 | 2 | | | | | | 700 | 20% | 138 | 16.200 | 0.117 |
| UT-Battelle: Foster Wheeler | 58 | 144 | 90 | 29 | | | | | | | | 321 | 82% | 263 | 30.404 | 0.116 |
| Uranium Disposition Services - Portsmouth Sub | 191 | 10 | 5 | 2 | | | | | | | | 208 | 8% | 17 | 1.793 | 0.105 |
| Lawrence Livermore National Laboratory - Neva | 212 | | 1 | | | | | | | | | 213 | 0% | 1 | 0.104 | 0.104 |
| Bechtel Jacobs - ORNL | 320 | 57 | 19 | 11 | | | | | | | | 407 | 21% | 87 | 8.651 | 0.099 |
| UDS - Paducah Subs | 236 | 24 | 19 | | | | | | | | | 279 | 15% | 43 | 3.481 | 0.081 |
| UT-Battelle: ORNL | 8,839 | 293 | 42 | 22 | 5 | 2 | | | | | | 9,203 | 4% | 364 | 27.197 | 0.075 |
| Lawrence Berkeley Laboratory | 783 | 12 | | 1 | | | | | | | | 796 | 2% | 13 | 0.759 | 0.058 |
| Lawrence Livermore Lab - Government | 127 | 1 | | | | | | | | | | 128 | 1% | 1 | 0.056 | 0.056 |
| ICP - CWI - Subcontractors | 159 | 64 | 12 | 1 | | | | | | | | 236 | 33% | 77 | 4.151 | 0.054 |
| SRR Operations | 9 | 3 | 1 | | | | | | | | | 13 | 31% | 4 | 0.209 | 0.052 |
| Brookhaven National Laboratory | 14 | 4 | | | | | | | | | | 18 | 22% | 4 | 0.202 | 0.051 |
| INL - BEA LLC - Research | 1,136 | 559 | 62 | 12 | | | | | | | | 1,769 | 36% | 633 | 29.200 | 0.046 |
| INL - BEA LLC - Services | 374 | 223 | 15 | 5 | | | | | | | | 617 | 39% | 243 | 10.505 | 0.043 |
| SRNS Construction | 56 | 22 | 2 | | | | | | | | | 80 | 30% | 24 | 0.787 | 0.033 |
| Savannah River Nuclear Solutions | 473 | 208 | 16 | 1 | | | | | | | | 698 | 32% | 225 | 7.159 | 0.032 |
| Sandia National Laboratory | 408 | 16 | 1 | | | | | | | | | 425 | 4% | 17 | 0.492 | 0.029 |
| Bechtel Hanford | | 1 | | | | | | | | | | 1 | 100% | 1 | 0.028 | 0.028 |
| Ames Laboratory (Iowa State) | 133 | 29 | | | | | | | | | | 162 | 18% | 29 | 0.762 | 0.026 |
| SEC Oak Ridge | 191 | 15 | | | | | | | | | | 206 | 7% | 15 | 0.393 | 0.026 |
| Swift & Staley Mech Contr Inc (Pad) | 213 | 2 | | | | | | | | | | 215 | 1% | 2 | 0.051 | 0.026 |
| INL - BEA LLC - Production | 337 | 304 | 2 | | | | | | | | | 643 | 48% | 306 | 7.621 | 0.025 |
| Isotek (Bldg 3019) | 82 | 20 | | | | | | | | | | 102 | 20% | 20 | 0.437 | 0.022 |
| Bechtel Jacobs - ETTP | 1,596 | 39 | | | | | | | | | | 1,635 | 2% | 39 | 0.830 | 0.021 |
| Wackenhut Services | 245 | 3 | | | | | | | | | | 248 | 1% | 3 | 0.059 | 0.020 |
| INL - BEA LLC - Security | 43 | 16 | | | | | | | | | | 59 | 27% | 16 | 0.307 | 0.019 |
| LATA/Parralax Portsmouth LLC | 2,256 | 27 | | | | | | | | | | 2,283 | 1% | 27 | 0.452 | 0.017 |
| Wackenhut Services Inc. - SR | 62 | 5 | | | | | | | | | | 67 | 7% | 5 | 0.079 | 0.016 |
| Paducah Remediation Services (PRS) | 709 | 32 | 1 | | | | | | | | | 742 | 4% | 33 | 0.506 | 0.015 |
| Savannah River Field Office | 15 | 2 | | | | | | | | | | 17 | 12% | 2 | 0.024 | 0.012 |
| SRNS Service Subs | 76 | 67 | 2 | | | | | | | | | 145 | 48% | 69 | 0.847 | 0.012 |
| Misc. DOE Contractors - SR | 5 | 2 | | | | | | | | | | 7 | 29% | 2 | 0.021 | 0.011 |
| Theta Pro2Serve Management Co. (Ports) | 352 | 3 | | | | | | | | | | 355 | 1% | 3 | 0.034 | 0.011 |
| Univ. of Georgia Ecology Laboratory | 6 | 2 | | | | | | | | | | 8 | 25% | 2 | 0.021 | 0.011 |
| Bechtel Jacobs - Y-12 | 97 | 2 | | | | | | | | | | 99 | 2% | 2 | 0.018 | 0.009 |
| Misc. S.R.S. Const. Subcontractors | 7 | 2 | | | | | | | | | | 9 | 22% | 2 | 0.011 | 0.006 |
| SR construction - Parsons | | 1 | | | | | | | | | | 1 | 100% | 1 | 0.006 | 0.006 |
| National Renewable Energy Lab (NREL)- GO | 9 | 5 | | | | | | | | | | 14 | 36% | 5 | 0.017 | 0.003 |
| Oak Ridge Inst. for Sci. & Educ. (ORISE) | 80 | 82 | | | | | | | | | | 162 | 51% | 82 | 0.211 | 0.003 |
| ICP - CWI - Construction Subs | 2 | | | | | | | | | | | 2 | 0% | 0 | 0.000 | 0.000 |
| ICP - CWI - Projects | 4 | | | | | | | | | | | 4 | 0% | 0 | 0.000 | 0.000 |
| LATA Sharp | 42 | | | | | | | | | | | 42 | 0% | 0 | 0.000 | 0.000 |
| SRNS Construction Subs | 6 | | | | | | | | | | | 6 | 0% | 0 | 0.000 | 0.000 |
| SRR Service Subs | 8 | | | | | | | | | | | 8 | 0% | 0 | 0.000 | 0.000 |
| USEC - Oak Ridge | 129 | | | | | | | | | | | 129 | 0% | 0 | 0.000 | 0.000 |
| Totals | 30,617 | 2,586 | 364 | 124 | 23 | 12 | 8 | | | | | 33,734 | 9% | 3,117 | 201.768 | 0.065 |

DOE Occupational Radiation Exposure: 2011 Annual Report

Exhibit B-13. Distribution of TED by Facility Type Listed in Descending Order of Average Measurable TED for Research, Fusion, 2011.

RESEARCH, FUSION

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

| Site/Contractor | Less than Meas | Meas 0 - 0.10 | 0.10 - 0.25 | 0.25 - 0.50 | 0.50 - 0.75 | 0.75 - 1.00 | 1 - 2 | 2 - 3 | 3 - 4 | 4 - 5 | >5 | Total Monitored | Percent of Monitored with Meas. TED | No. with Meas. TED | Collective TED (Person-rem) | Avg. Meas. TED (rem) |
|-------------------------------------|----------------|---------------|-------------|-------------|-------------|-------------|-------|-------|-------|-------|----|-----------------|-------------------------------------|--------------------|-----------------------------|----------------------|
| Sandia National Laboratory | 47 | 2 | | | | | | | | | | 49 | 4% | 2 | 0.033 | 0.017 |
| Princeton Plasma Physics Laboratory | 313 | 53 | | | | | | | | | | 366 | 14% | 53 | 0.401 | 0.008 |
| Los Alamos National Laboratory | 2 | | | | | | | | | | | 2 | 0% | 0 | 0.000 | 0.000 |
| Totals | 362 | 55 | | | | | | | | | | 417 | 13% | 55 | 0.434 | 0.008 |

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

DOE Occupational Radiation Exposure: 2011 Annual Report

Exhibit B-14. Distribution of TED by Facility Type Listed in Descending Order of Average Measurable TED for Waste Processing, 2011.

WASTE PROCESSING

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

| Site/Contractor | Less than Meas | Meas 0 - 0.10 | 0.10 - 0.25 | 0.25 - 0.50 | 0.50 - 0.75 | 0.75 - 1.00 | 1 - 2 | 2 - 3 | 3 - 4 | 4 - 5 | >5 | Total Monitored | Percent of Monitored with Meas. TED | No. with Meas. TED | Collective TED (Person-rem) | Avg. Meas. TED (rem) |
|---|----------------|---------------|-------------|-------------|-------------|-------------|-------|-------|-------|-------|----|-----------------|-------------------------------------|--------------------|-----------------------------|----------------------|
| West Valley Nuclear Services Inc. | 312 | 96 | 77 | 47 | 19 | 8 | | | | | | 559 | 44% | 247 | 51.662 ◀ | 0.209 ◀ |
| ICP - CWI - Construction Subs | 40 | 16 | 5 | 4 | 1 | | | | | | | 66 | 39% | 26 | 3.319 | 0.128 |
| ICP - CWI - Projects | 724 | 283 | 82 | 36 | 13 | 2 | | | | | | 1,140 | 36% | 416 | 44.905 | 0.108 |
| SRNS Service Subs | 310 | 126 | 43 | 14 | 3 | | | | | | | 496 | 38% | 186 | 17.032 | 0.092 |
| Savannah River Nuclear Solutions | 564 | 212 | 47 | 31 | 4 | | | | | | | 858 | 34% | 294 | 26.595 | 0.090 |
| Energy Solutions - UMTRA Project - Moab | 9 | 142 | 37 | 12 | | | | | | | | 200 | 96% ◀ | 191 | 15.000 | 0.079 |
| Sandia National Laboratory | 85 | 12 | 4 | 2 | | | | | | | | 103 | 17% | 18 | 1.347 | 0.075 |
| SRNS Construction | 126 | 33 | 12 | 1 | | | | | | | | 172 | 27% | 46 | 3.437 | 0.075 |
| SRR Operations | 894 | 508 | 146 | 25 | 5 | | | | | | | 1,578 ◀ | 43% | 684 ◀ | 48.874 | 0.071 |
| SRR Service Subs | 87 | 26 | 3 | | 2 | | | | | | | 118 | 26% | 31 | 2.166 | 0.070 |
| Bechtel Construction - SR | 209 | 284 | 64 | 13 | | | | | | | | 570 | 63% | 361 | 23.684 | 0.066 |
| Misc. S.R.S. Const. Subcontractors | 62 | 17 | 2 | | 1 | | | | | | | 82 | 24% | 20 | 1.327 | 0.066 |
| Brookhaven National Laboratory | 28 | 9 | 2 | | | | | | | | | 39 | 28% | 11 | 0.618 | 0.056 |
| Misc. DOE Contractors - SR | 26 | 8 | 2 | | | | | | | | | 36 | 28% | 10 | 0.484 | 0.048 |
| INL - BEA LLC - Services | 15 | 7 | 1 | | | | | | | | | 23 | 35% | 8 | 0.331 | 0.041 |
| CH2M HILL Hanford Group Inc. | 969 | 328 | 10 | | | | | | | | | 1,307 | 26% | 338 | 10.871 | 0.032 |
| Savannah River Field Office | 67 | 4 | 1 | | | | | | | | | 72 | 7% | 5 | 0.160 | 0.032 |
| Advance Technology Laboratories | 40 | 14 | | | | | | | | | | 54 | 26% | 14 | 0.395 | 0.028 |
| ICP - CWI - Support | 126 | 8 | | | | | | | | | | 134 | 6% | 8 | 0.222 | 0.028 |
| Wackenhut Services Inc. - SR | 257 | 21 | | | | | | | | | | 278 | 8% | 21 | 0.450 | 0.021 |
| Washington TRU Solutions LLC-WIPP | 929 | 25 | | | | | | | | | | 954 | 3% | 25 | 0.476 | 0.019 |
| ICP - CWI - Subcontractors | 2 | 4 | | | | | | | | | | 6 | 67% | 4 | 0.064 | 0.016 |
| SRNS Construction Subs | 9 | 7 | | | | | | | | | | 16 | 44% | 7 | 0.102 | 0.015 |
| SPRU-NY (Building remediation) | 263 | 13 | | | | | | | | | | 276 | 5% | 13 | 0.179 | 0.014 |
| Battelle - PNNL | 4 | | | | | | | | | | | 4 | 0% | 0 | 0.000 | 0.000 |
| Bechtel Hanford | 2 | | | | | | | | | | | 2 | 0% | 0 | 0.000 | 0.000 |
| Bechtel National Corporation | 1 | | | | | | | | | | | 1 | 0% | 0 | 0.000 | 0.000 |
| Carlsbad Field Office | 112 | | | | | | | | | | | 112 | 0% | 0 | 0.000 | 0.000 |
| CH2M HILL Plateau Remediation Company (Hanford) | 1 | | | | | | | | | | | 1 | 0% | 0 | 0.000 | 0.000 |
| DeNuke Services (SPRU-LA) | 12 | | | | | | | | | | | 12 | 0% | 0 | 0.000 | 0.000 |
| Los Alamos National Lab - WIPP | 31 | | | | | | | | | | | 31 | 0% | 0 | 0.000 | 0.000 |
| Los Alamos National Laboratory | 5 | | | | | | | | | | | 5 | 0% | 0 | 0.000 | 0.000 |
| Mission Support Alliance (MSA) | 3 | | | | | | | | | | | 3 | 0% | 0 | 0.000 | 0.000 |
| NNSA Los Alamos Site Office | 1 | | | | | | | | | | | 1 | 0% | 0 | 0.000 | 0.000 |
| Sandia National Lab - WIPP | 29 | | | | | | | | | | | 29 | 0% | 0 | 0.000 | 0.000 |
| Santa Fe Protective Services (WIPP) | 33 | | | | | | | | | | | 33 | 0% | 0 | 0.000 | 0.000 |
| SR construction - Parsons | 4 | | | | | | | | | | | 4 | 0% | 0 | 0.000 | 0.000 |
| WTS - Small subs | 1 | | | | | | | | | | | 1 | 0% | 0 | 0.000 | 0.000 |
| WTS Subcontractors - WIPP | 45 | | | | | | | | | | | 45 | 0% | 0 | 0.000 | 0.000 |
| Totals | 6,437 | 2,203 | 538 | 185 | 48 | 10 | | | | | | 9,421 | 32% | 2,984 | 253.700 | 0.085 |

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

DOE Occupational Radiation Exposure: 2011 Annual Report

Exhibit B-15. Distribution of TED by Facility Type Listed in Descending Order of Average Measurable TED for Weapons Fabrication, 2011.

WEAPONS FABRICATION

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

| Site/Contractor | Less than Meas | Meas 0 - 0.10 | 0.10 - 0.25 | 0.25 - 0.50 | 0.50 - 0.75 | 0.75 - 1.00 | 1 - 2 | 2 - 3 | 3 - 4 | 4 - 5 | >5 | Total Monitored | Percent of Monitored with Meas. TED | No. with Meas. TED | Collective TED (Person-rem) | Avg. Meas. TED (rem) |
|----------------------------------|----------------|---------------|-------------|-------------|-------------|-------------|-------|-------|-------|-------|----|-----------------|-------------------------------------|--------------------|-----------------------------|----------------------|
| B & W Pantex | 2,978 | 219 | 55 | 29 | 3 | | | | | | | 3,284 | 9% | 306 | 28.601 | 0.093 ◀ |
| B & W - Security | 65 | 4 | 1 | | | | | | | | | 70 | 7% | 5 | 0.346 | 0.069 |
| BWXT Y-12 | 5,326 | 1,372 | 144 | 18 | 1 | | | | | | | 6,861 ◀ | 22% ◀ | 1,535 ◀ | 59.037 ◀ | 0.038 |
| Honeywell FM&T/KC Production | 66 | 2 | | | | | | | | | | 68 | 3% | 2 | 0.049 | 0.025 |
| Sandia National Laboratory | 632 | 11 | | | | | | | | | | 643 | 2% | 11 | 0.235 | 0.021 |
| Savannah River Nuclear Solutions | 280 | 31 | | | | | | | | | | 311 | 10% | 31 | 0.392 | 0.013 |
| SRNS Construction | 26 | 3 | | | | | | | | | | 29 | 10% | 3 | 0.017 | 0.006 |
| SRNS Service Subs | 10 | 1 | | | | | | | | | | 11 | 9% | 1 | 0.006 | 0.006 |
| Savannah River Field Office | 4 | 1 | | | | | | | | | | 5 | 20% | 1 | 0.005 | 0.005 |
| B & W - Subcontractors | 17 | | | | | | | | | | | 17 | 0% | 0 | 0.000 | 0.000 |
| Bechtel Construction - SR | 1 | | | | | | | | | | | 1 | 0% | 0 | 0.000 | 0.000 |
| PXSO/NNSA and DOE Couriers | 2 | | | | | | | | | | | 2 | 0% | 0 | 0.000 | 0.000 |
| Totals | 9,407 | 1,644 | 200 | 47 | 4 | | | | | | | 11,302 | 17% | 1,895 | 88.688 | 0.047 |

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

DOE Occupational Radiation Exposure: 2011 Annual Report

Exhibit B-16. Distribution of TED by Facility Type Listed in Descending Order of Average Measurable TED for Other, 2011.

| OTHER | | | | | | | | | | | | | | | | |
|--|----------------|---------------|-------------|-------------|-------------|-------------|-------|-------|-------|-------|----|-----------------|-------------------------------------|--------------------|-----------------------------|----------------------|
| Number of Individuals Receiving Radiation Doses in Each Dose Range (rem) | | | | | | | | | | | | | | | | |
| Site/Contractor | Less than Meas | Meas 0 - 0.10 | 0.10 - 0.25 | 0.25 - 0.50 | 0.50 - 0.75 | 0.75 - 1.00 | 1 - 2 | 2 - 3 | 3 - 4 | 4 - 5 | >5 | Total Monitored | Percent of Monitored with Meas. TED | No. with Meas. TED | Collective TED (Person-rem) | Avg. Meas. TED (rem) |
| ICP - CWI - Projects | 1 | | 1 | 2 | | | | | | | | 4 | 75% ◀ | 3 | 1.001 | 0.334 ◀ |
| CH2M HILL Hanford Group Inc. | 407 | 77 | 31 | 15 | 1 | | | | | | | 531 | 23% | 124 | 13.602 | 0.110 |
| Battelle - PNNL | 1,130 | 95 | 11 | 2 | 1 | | | | | | | 1,239 | 9% | 109 | 5.770 | 0.053 |
| Mission Support Alliance (MSA) | 73 | 1 | | | | | | | | | | 74 | 1% | 1 | 0.052 | 0.052 |
| DOE - Richland Field Office | 606 | 20 | 2 | | | | | | | | | 628 | 4% | 22 | 1.045 | 0.048 |
| CH2M HILL Plateau Remediation Company (Hanford) | 1,149 | 233 | 29 | 2 | | | | | | | | 1,413 | 19% | 264 | 12.494 | 0.047 |
| ICP - CWI - Subcontractors | 1,372 | 375 | 32 | 10 | | | | | | | | 1,789 | 23% | 417 ◀ | 18.398 ◀ | 0.044 |
| ICP - CWI - Construction Subs | 283 | 73 | 2 | 3 | | | | | | | | 361 | 22% | 78 | 3.386 | 0.043 |
| SRNS Service Subs | 293 | 21 | 4 | | | | | | | | | 318 | 8% | 25 | 1.048 | 0.042 |
| Sandia National Laboratory | 712 | 25 | 2 | | | | | | | | | 739 | 4% | 27 | 1.011 | 0.037 |
| Los Alamos National Laboratory | 2,573 | 40 | 6 | | | | | | | | | 2,619 ◀ | 2% | 46 | 1.633 | 0.036 |
| Bechtel Hanford | 1,574 | 230 | 9 | | | | | | | | | 1,813 | 13% | 239 | 7.396 | 0.031 |
| INL - BEA LLC - Services | 335 | 130 | 2 | | | | | | | | | 467 | 28% | 132 | 2.871 | 0.022 |
| New Brunswick Laboratory - Research | 59 | 8 | | | | | | | | | | 67 | 12% | 8 | 0.165 | 0.021 |
| Office Of River Protection | 97 | 5 | | | | | | | | | | 102 | 5% | 5 | 0.103 | 0.021 |
| Bechtel National Corporation | 16 | 1 | | | | | | | | | | 17 | 6% | 1 | 0.020 | 0.020 |
| INL - BEA LLC - Research | 51 | 16 | | | | | | | | | | 67 | 24% | 16 | 0.309 | 0.019 |
| Savannah River Nuclear Solutions | 357 | 50 | 1 | | | | | | | | | 408 | 13% | 51 | 0.972 | 0.019 |
| SRNS Construction | 101 | 18 | 1 | | | | | | | | | 120 | 16% | 19 | 0.332 | 0.017 |
| INL - BEA LLC - Production | 8 | 1 | | | | | | | | | | 9 | 11% | 1 | 0.012 | 0.012 |
| Savannah River Field Office | 40 | 4 | | | | | | | | | | 44 | 9% | 4 | 0.041 | 0.010 |
| Boeing North America Inc. - Research | 49 | 47 | | | | | | | | | | 96 | 49% | 47 | 0.139 | 0.003 |
| Advance Technology Laboratories | 30 | | | | | | | | | | | 30 | 0% | 0 | 0.000 | 0.000 |
| Advanced Med Hanford | 37 | | | | | | | | | | | 37 | 0% | 0 | 0.000 | 0.000 |
| ICP - CWI - Support | 2 | | | | | | | | | | | 2 | 0% | 0 | 0.000 | 0.000 |
| Johnson Controls Inc. | 1 | | | | | | | | | | | 1 | 0% | 0 | 0.000 | 0.000 |
| Misc. DOE Contractors - SR | 10 | | | | | | | | | | | 10 | 0% | 0 | 0.000 | 0.000 |
| NNSA Los Alamos Site Office | 2 | | | | | | | | | | | 2 | 0% | 0 | 0.000 | 0.000 |
| Protection Technologies Los Alamos | 1 | | | | | | | | | | | 1 | 0% | 0 | 0.000 | 0.000 |
| SR construction - Parsons Subcontractors | 14 | | | | | | | | | | | 14 | 0% | 0 | 0.000 | 0.000 |
| SRNS Construction Subs | 6 | | | | | | | | | | | 6 | 0% | 0 | 0.000 | 0.000 |
| SRR Operations | 4 | | | | | | | | | | | 4 | 0% | 0 | 0.000 | 0.000 |
| SRR Service Subs | 10 | | | | | | | | | | | 10 | 0% | 0 | 0.000 | 0.000 |
| Wackenhut Services Inc. - SR | 3 | | | | | | | | | | | 3 | 0% | 0 | 0.000 | 0.000 |
| Totals | 11,406 | 1,470 | 133 | 34 | 2 | | | | | | | 13,045 | 13% | 1,639 | 71.800 | 0.044 |

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

DOE Occupational Radiation Exposure: 2011 Annual Report
Exhibit B-17. Internal Dose by Facility Type and Nuclide, 2009-2011.

| Facility Type | Nuclide* | No. of Individuals with New Intakes** | | | Collective CED (person-rem) | | | Average CED (rem) | | |
|---------------------------------|--------------|---------------------------------------|----------------|----------------|-----------------------------|-----------------|-----------------|-------------------|----------------|----------------|
| | | 2009 | 2010 | 2011 | 2009 | 2010 | 2011 | 2009 | 2010 | 2011 |
| Accelerator | Hydrogen-3 | 1 | | | 0.002 | | | 0.002 | | |
| | Total | 1 | | | 0.002 | | | 0.002 | | |
| Fuel Fabrication | Total | | | | | | | | | |
| Fuel Processing | Americium | 1 | | | 0.085 | | | 0.085 ◀ | | |
| | Plutonium | 14 | 9 | 7 | 0.079 | 0.037 | 0.029 | 0.006 | 0.004 | 0.004 |
| | Total | 15 | 9 | 7 | 0.164 | 0.037 | 0.029 | 0.011 | 0.004 | 0.004 |
| Fuel/Uranium Enrichment | Total | | | | | | | | | |
| Maintenance and Support | Americium | 3 | 1 | | 0.096 | 0.013 | | 0.032 | 0.013 | |
| | Hydrogen-3 | 12 | 7 | 5 | 0.027 | 0.014 | 0.006 | 0.002 | 0.002 | 0.001 |
| | Mixed | 12 | 18 | 5 | 0.159 | 0.050 | 0.019 | 0.013 | 0.003 | 0.004 |
| | Plutonium | 5 | 8 | 19 | 0.067 | 0.208 | 0.313 | 0.013 | 0.026 | 0.016 |
| | Uranium | 7 | | 3 | 0.145 | | 0.324 | 0.021 | | 0.108 ◀ |
| | Total | 39 | 34 | 32 | 0.494 | 0.285 | 0.662 | 0.013 | 0.008 | 0.021 |
| Other | Americium | 4 | | | 0.081 | | | 0.020 | | |
| | Hydrogen-3 | | 2 | | | 0.004 | | | 0.002 | |
| | Plutonium | 5 | 23 | 18 | 0.099 | 0.206 | 0.095 | 0.020 | 0.009 | 0.005 |
| | Total | 9 | 25 | 18 | 0.180 | 0.210 | 0.095 | 0.020 | 0.008 | 0.005 |
| Reactor | Hydrogen-3 | 2 | | | 0.004 | | | 0.002 | | |
| | Other | | | 1 | | | 0.001 | | | 0.001 |
| | Total | 2 | | 1 | 0.004 | | 0.001 | 0.002 | | 0.001 |
| Research, Fusion | Hydrogen-3 | 9 | 8 | | 0.070 | 0.026 | | 0.008 | 0.003 | |
| | Total | 9 | 8 | | 0.070 | 0.026 | | 0.008 | 0.003 | |
| Research, General | Americium | 2 | 17 | 3 | 0.058 | 0.419 | 0.051 | 0.029 | 0.025 | 0.017 |
| | Hydrogen-3 | 11 | 19 | 20 | 0.052 | 0.101 | 0.035 | 0.005 | 0.005 | 0.002 |
| | Other | 3 | 1 | 1 | 0.038 | 0.022 | 0.004 | 0.013 | 0.022 | 0.004 |
| | Plutonium | 4 | 22 | 11 | 0.064 | 0.795 | 1.897 | 0.016 | 0.036 | 0.172 |
| | Thorium | | | 1 | | | 0.074 | | | 0.074 |
| | Uranium | 4 | 21 | 35 | 0.104 | 0.605 | 0.812 | 0.026 | 0.029 | 0.023 |
| | Total | 24 | 80 | 71 | 0.316 | 1.942 | 2.873 | 0.013 | 0.024 | 0.040 |
| Waste Processing/Management | Americium | 8 | 6 | 6 | 0.290 | 0.595 | 0.181 | 0.036 | 0.099 | 0.030 |
| | Hydrogen-3 | 1 | | | 0.002 | | | 0.002 | | |
| | Other | | 1 | | | 0.004 | | | 0.004 | |
| | Plutonium | 39 | 21 | 33 | 0.307 | 31.698 | 0.232 | 0.008 | 1.509 ◀ | 0.007 |
| | Uranium | | 109 | 108 | | 3.743 | 2.279 | | 0.034 | 0.021 |
| | Total | 48 | 137 | 147 | 0.599 | 36.040 | 2.692 | 0.012 | 0.263 | 0.018 |
| Weapons Fabrication and Testing | Americium | | | 3 | | | 0.284 | | | 0.095 |
| | Hydrogen-3 | 8 | 6 | 5 | 0.060 | 0.019 | 0.017 | 0.008 | 0.003 | 0.003 |
| | Mixed | 39 | 22 | 45 | 0.463 | 0.443 | 1.350 | 0.012 | 0.020 | 0.030 |
| | Plutonium | 1 | 1 | | 0.020 | 0.001 | | 0.020 | 0.001 | |
| | Thorium | | 1 | 1 | | 0.374 | 0.091 | | 0.374 | 0.091 |
| | Uranium | 1,107 ◀ | 1,342 ◀ | 1,200 ◀ | 48.790 ◀ | 56.509 ◀ | 42.918 ◀ | 0.044 | 0.042 | 0.036 |
| | Total | 1,155 | 1,372 | 1,254 | 49.333 | 57.346 | 44.660 | 0.043 | 0.042 | 0.036 |
| Totals | 1,302 | 1,665 | 1,530 | 51.162 | 95.886 | 51.012 | 0.039 | 0.058 | 0.033 | |

*Intakes grouped by nuclide. Intakes involving multiple nuclides were grouped into "mixed." Nuclides where fewer than 10 individuals had intakes were grouped as "other."

**Individuals may be counted more than once.

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

**DOE Occupational Radiation Exposure: 2011 Annual Report
Exhibit B-18a Distribution of TED by Labor Category - 2009.**

| Total Effective Dose (TED) | | | | | | | | | | | | | | | | |
|---|-----------------------|----------------------|--------------------|--------------------|--------------------|--------------------|--------------|--------------|--------------|--------------|--------------|------------------------|---|---------------------------|------------------------------------|-----------------------------|
| Number of Individuals Receiving Radiation Doses in Each Dose Range (rem) | | | | | | | | | | | | | | | | |
| Labor Category | Less than Meas | Meas 0 - 0.10 | 0.10 - 0.25 | 0.25 - 0.50 | 0.50 - 0.75 | 0.75 - 1.00 | 1 - 2 | 2 - 3 | 3 - 4 | 4 - 5 | >5 | Total Monitored | Percent of Monitored with Meas. TEDE | No. with Meas. TED | Collective TED (Person-rem) | Avg. Meas. TED (rem) |
| Agriculture | 119 | 3 | 1 | 1 | | | | | | | | 124 | 4% | 5 | 0.612 | 0.122 ◀ |
| Construction | 3,863 | 974 | 128 | 38 | 1 | | | | | | | 5,004 | 23% | 1,141 | 59.841 | 0.052 |
| Laborers | 1,395 | 348 | 90 | 32 | 1 | | | | | | | 1,866 | 25% | 471 | 38.299 | 0.081 |
| Management | 7,139 | 732 | 60 | 11 | | | | | | | | 7,942 | 10% | 803 | 29.448 | 0.037 |
| Miscellaneous | 5,413 | 974 | 131 | 42 | | | | | | | | 6,560 | 17% | 1,147 | 61.364 | 0.053 |
| Production | 2,754 | 1,150 | 293 | 94 | 19 | 2 | | | | | | 4,312 | 36% ◀ | 1,558 | 129.169 | 0.083 |
| Scientists | 20,614 | 1,768 | 113 | 31 | 4 | 4 | | | | | | 22,534 | 9% | 1,920 | 67.912 | 0.035 |
| Service | 3,095 | 307 | 17 | 10 | 1 | | | | | | | 3,430 | 10% | 335 | 10.691 | 0.032 |
| Technicians | 6,942 | 1,494 | 279 | 107 | 20 | 8 | 3 | | | | | 8,853 | 22% | 1,911 | 152.347 | 0.080 |
| Transport | 1,766 | 200 | 29 | 4 | | 2 | 3 | | | | | 2,004 | 12% | 238 | 17.967 | 0.075 |
| Unknown | 21,837 | 1,810 | 257 | 120 | 25 | 12 | 4 | | | | | 24,065 ◀ | 9% | 2,228 ◀ | 158.827 ◀ | 0.071 |
| Totals | 74,937 | 9,760 | 1,398 | 490 | 71 | 28 | 10 | | | | | 86,694 | 14% | 11,757 | 726.477 | 0.062 |

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

**DOE Occupational Radiation Exposure: 2011 Annual Report
Exhibit B-18b. Distribution of TED by Labor Category - 2010.**

Total Effective Dose (TED)

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

| Labor Category | Less than Meas | Meas 0 - 0.10 | 0.10 - 0.25 | 0.25 - 0.50 | 0.50 - 0.75 | 0.75 - 1.00 | 1 - 2 | 2 - 3 | 3 - 4 | 4 - 5 | >5 | Total Monitored | Percent of Monitored with Meas. TED | No. with Meas. TED | Collective TED (Person-rem) | Avg. Meas. TED (rem) |
|----------------|----------------|---------------|--------------|-------------|-------------|-------------|----------|-------|-------|-------|----------|-----------------|-------------------------------------|--------------------|-----------------------------|----------------------|
| Agriculture | 85 | 7 | 3 | 2 | | | | | | | | 97 | 12% | 12 | 1.332 | 0.111 ◀ |
| Construction | 3,997 | 1,310 | 192 | 42 | 1 | | | | | | | 5,542 | 28% | 1,545 | 82.812 | 0.054 |
| Laborers | 974 | 387 | 80 | 42 | 2 | | | | | | | 1,485 | 34% | 511 | 39.855 | 0.078 |
| Management | 7,692 | 756 | 65 | 22 | 1 | 1 | | | | | | 8,537 | 10% | 845 | 36.082 | 0.043 |
| Miscellaneous | 6,949 | 974 | 210 | 69 | 14 | 2 | 1 | | | | 1 | 8,220 | 15% | 1,271 | 127.519 | 0.100 |
| Production | 2,262 | 1,328 | 426 | 162 | 7 | 1 | | | | | | 4,186 | 46% ◀ | 1,924 | 174.218 | 0.091 |
| Scientists | 18,512 | 1,852 | 133 | 44 | 10 | 1 | 1 | | | | | 20,553 | 10% | 2,041 | 84.384 | 0.041 |
| Service | 2,629 | 257 | 12 | 10 | 1 | | | | | | | 2,909 | 10% | 280 | 10.585 | 0.038 |
| Technicians | 6,474 | 1,804 | 451 | 174 | 53 | 14 | 6 | | | | | 8,976 | 28% | 2,502 ◀ | 243.919 ◀ | 0.097 |
| Transport | 1,594 | 227 | 63 | 33 | | | | | | | | 1,917 | 17% | 323 | 25.892 | 0.08 |
| Unknown | 27,859 | 1,450 | 223 | 95 | 12 | 4 | 1 | | | | | 29,644 ◀ | 6% | 1,785 | 120.151 | 0.067 |
| Totals | 79,027 | 10,352 | 1,858 | 695 | 101 | 23 | 9 | | | | 1 | 92,066 | 14% | 13,039 | 946.749 | 0.073 |

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

DOE Occupational Radiation Exposure: 2011 Annual Report
Exhibit B-18c. Distribution of TED by Labor Category - 2011.

| Total Effective Dose (TED) | | | | | | | | | | | | | | | | |
|---|-----------------------|----------------------|--------------------|--------------------|--------------------|--------------------|--------------|--------------|--------------|--------------|--------------|------------------------|--|---------------------------|------------------------------------|-----------------------------|
| Number of Individuals Receiving Radiation Doses in Each Dose Range (rem) | | | | | | | | | | | | | | | | |
| Labor Category | Less than Meas | Meas 0 - 0.10 | 0.10 - 0.25 | 0.25 - 0.50 | 0.50 - 0.75 | 0.75 - 1.00 | 1 - 2 | 2 - 3 | 3 - 4 | 4 - 5 | >5 | Total Monitored | Percent of Monitored with Meas. TED | No. with Meas. TED | Collective TED (Person-rem) | Avg. Meas. TED (rem) |
| Agriculture | 96 | 6 | 2 | 1 | | | | | | | | 105 | 9% | 9 | 0.869 | 0.097 ◀ |
| Construction | 4,169 | 1,290 | 178 | 44 | | 1 | | | | | | 5,682 | 27% | 1,513 | 79.849 | 0.053 |
| Laborers | 956 | 386 | 77 | 33 | 5 | 1 | | | | | | 1,458 | 34% | 502 | 39.146 | 0.078 |
| Management | 8,183 | 751 | 62 | 11 | 1 | | | | | | | 9,008 | 9% | 825 | 30.934 | 0.037 |
| Miscellaneous | 6,570 | 1,226 | 160 | 60 | 17 | 7 | 3 | | | | | 8,043 | 18% | 1,473 | 98.344 | 0.067 |
| Production | 2,423 | 1,372 | 382 | 123 | 19 | 9 | | | | | | 4,328 | 44% ◀ | 1,905 | 170.559 | 0.090 |
| Scientists | 19,355 | 2,026 | 121 | 36 | 6 | 2 | 1 | | | | | 21,547 | 10% | 2,192 | 80.986 | 0.037 |
| Service | 2,728 | 257 | 12 | 4 | | | | | | | | 3,001 | 9% | 273 | 9.142 | 0.033 |
| Technicians | 6,686 | 1,712 | 450 | 162 | 44 | 18 | 7 | | | | | 9,079 | 26% | 2,393 ◀ | 231.664 ◀ | 0.097 |
| Transport | 1,601 | 206 | 42 | 11 | 1 | | | | | | | 1,861 | 14% | 260 | 16.373 | 0.063 |
| Unknown | 26,115 | 1,275 | 249 | 79 | 6 | 3 | | | | | | 27,727 ◀ | 6% | 1,612 | 105.662 | 0.066 |
| Totals | 78,882 | 10,507 | 1,735 | 564 | 99 | 41 | 11 | | | | | 91,839 | 14% | 12,957 | 863.528 | 0.067 |

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

DOE Occupational Radiation Exposure: 2011 Annual Report
Exhibit B-19. Internal Dose by Labor Category, 2009-2011.

| Labor Category | No. of Individuals with New Intakes* | | | Collective CED Dose from Intake (person-rem) | | | Average CED | | |
|----------------|--------------------------------------|--------------|--------------|--|-----------------|-----------------|----------------|----------------|----------------|
| | 2009 | 2010 | 2011 | 2009 | 2010 | 2011 | 2009 | 2010 | 2011 |
| Agriculture | 1 | 2 | 1 | 0.013 | 0.035 | 0.034 | 0.013 | 0.018 | 0.034 |
| Construction | 194 | 263 | 239 | 6.145 | 6.512 | 5.344 | 0.032 | 0.025 | 0.022 |
| Laborers | 69 | 87 | 98 | 4.300 | 3.902 | 5.109 | 0.062 ◀ | 0.045 | 0.052 ◀ |
| Management | 122 | 122 | 110 | 4.273 | 4.999 | 4.651 | 0.035 | 0.041 | 0.042 |
| Miscellaneous | 21 | 47 | 29 | 0.458 | 33.229 ◀ | 2.024 | 0.022 | 0.707 ◀ | 0.070 |
| Production | 338 ◀ | 404 ◀ | 383 ◀ | 19.482 ◀ | 21.790 | 16.169 ◀ | 0.058 | 0.054 | 0.042 |
| Scientists | 156 | 178 | 158 | 3.389 | 4.292 | 3.403 | 0.022 | 0.024 | 0.022 |
| Service | 7 | 9 | 11 | 0.291 | 0.353 | 0.507 | 0.042 | 0.039 | 0.046 |
| Technicians | 162 | 200 | 169 | 7.131 | 7.344 | 5.542 | 0.044 | 0.037 | 0.033 |
| Transport | 4 | 65 | 69 | 0.025 | 2.077 | 1.416 | 0.006 | 0.032 | 0.021 |
| Unknown | 228 | 288 | 263 | 5.655 | 11.353 | 6.813 | 0.025 | 0.039 | 0.026 |
| Totals | 1,302 | 1,665 | 1,530 | 51.162 | 95.886 | 51.012 | 0.039 | 0.058 | 0.033 |

*Only included intakes that occurred during the monitoring year. Individuals may be counted more than once.
 Note: Boxed values (gray background) indicate the greatest value in each column.

DOE Occupational Radiation Exposure: 2011 Annual Report
Exhibit B-20. Dose Distribution by Labor Category and Occupation, 2011.

| Labor Category | Occupation | Less than Meas | Meas 0 - 0.10 | 0.10 - 0.25 | 0.25 - 0.50 | 0.50 - 0.75 | 0.75 - 1.00 | 1 - 2 | 2 - 3 | 3 - 4 | 4 - 5 | >5 | Total Monitored | Percent of Monitored with Meas. TED | No. with Meas. TED | Collective TED (Person-rem) | Avg. Meas. TED (rem) |
|----------------|--------------------------------|------------------|---------------|--------------|-------------|-------------|-------------|-----------|-------|-------|-------|----|-----------------|-------------------------------------|--------------------|-----------------------------|----------------------|
| Agriculture | Misc. Agriculture | 17 | 3 | 2 | 1 | | | | | | | | 23 | 26% | 6 | 0.847 | 0.141 |
| | Groundskeepers | 79 | 3 | | | | | | | | | | 82 | 4% | 3 | 0.022 | 0.007 |
| Construction | Carpenters | 371 | 127 | 33 | 5 | | | | | | | | 536 | 31% | 165 | 10.904 | 0.066 |
| | Electricians | 1,304 | 353 | 27 | 2 | | | | | | | | 1,686 | 23% | 382 | 13.131 | 0.034 |
| | Masons | 29 | 13 | 1 | | | | | | | | | 43 | 33% | 14 | 0.391 | 0.028 |
| | Mechanics/Repairers | 537 | 161 | 43 | 16 | | | | | | | | 757 | 29% | 220 | 17.677 | 0.080 |
| | Miners/Drillers | 108 | 11 | | | | | | | | | | 119 | 9% | 11 | 0.210 | 0.019 |
| | Misc. Repair/Construction | 1,251 | 447 | 30 | 5 | | 1 | | | | | | 1,734 | 28% | 483 | 19.437 | 0.040 |
| | Painters | 151 | 30 | 6 | 1 | | | | | | | | 188 | 20% | 37 | 1.969 | 0.053 |
| | Pipe Fitter | 418 | 148 | 38 | 15 | | | | | | | | 619 | 32% | 201 | 16.130 | 0.080 |
| Laborers | Handlers/Laborers/Helpers | 956 | 386 | 77 | 33 | 5 | 1 | | | | | | 1,458 | 34% | 502 | 39.146 | 0.078 |
| Management | Sales | 17 | 4 | | | | | | | | | | 21 | 19% | 4 | 0.085 | 0.021 |
| | Admin. Support & Clerical Sec. | 2,256 | 151 | 8 | 2 | | | | | | | | 2,417 | 7% | 161 | 4.973 | 0.031 |
| | Manager - Administrator | 5,910 | 596 | 54 | 9 | 1 | | | | | | | 6,570 | 10% | 660 | 25.876 | 0.039 |
| Miscellaneous | Military | 27 | | | | | | | | | | | 27 | | | | |
| | Miscellaneous | 6,543 | 1,226 | 160 | 60 | 17 | 7 | 3 | | | | | 8,016 | 18% | 1,473 | 98.344 | 0.067 |
| Production | Welders and Solderers | 39 | 6 | 2 | 1 | | | | | | | | 48 | 19% | 9 | 0.819 | 0.091 |
| | Machine Setup/Operators | 125 | 195 | 56 | 9 | | | | | | | | 385 | 68% | 260 | 18.866 | 0.073 |
| | Machinists | 108 | 34 | 10 | 5 | | 1 | | | | | | 158 | 32% | 50 | 5.050 | 0.101 |
| | Misc. Precision/Production | 461 | 215 | 46 | 8 | 4 | | | | | | | 734 | 37% | 273 | 19.690 | 0.072 |
| | Operators, Plant/ System/Util. | 1,581 | 889 | 265 | 99 | 15 | 8 | | | | | | 2,857 | 45% | 1,276 | 124.404 | 0.097 |
| | Sheet Metal Workers | 109 | 33 | 3 | 1 | | | | | | | | 146 | 25% | 37 | 1.730 | 0.047 |
| | Scientists | Health Physicist | 434 | 94 | 8 | 2 | | | | | | | | 538 | 19% | 104 | 3.955 |
| Service | Misc. Professional | 6,844 | 841 | 48 | 14 | 2 | | 1 | | | | | 7,750 | 12% | 906 | 31.210 | 0.034 |
| | Scientist | 5,247 | 421 | 35 | 14 | 3 | | | | | | | 5,720 | 8% | 473 | 22.679 | 0.048 |
| | Engineer | 6,761 | 666 | 30 | 6 | 1 | 2 | | | | | | 7,466 | 9% | 705 | 22.901 | 0.032 |
| | Doctors and Nurses | 69 | 4 | | | | | | | | | | 73 | 5% | 4 | 0.241 | 0.060 |
| | Firefighters | 449 | 29 | 2 | | | | | | | | | 480 | 6% | 31 | 0.798 | 0.026 |
| Technicians | Food Service Employees | 8 | 4 | | 1 | | | | | | | | 13 | 38% | 5 | 0.484 | 0.097 |
| | Janitors | 472 | 38 | 4 | | | | | | | | | 514 | 8% | 42 | 1.762 | 0.042 |
| | Misc. Service | 330 | 18 | 1 | 1 | | | | | | | | 350 | 6% | 20 | 0.938 | 0.047 |
| | Security Guards | 1,469 | 168 | 5 | 2 | | | | | | | | 1,644 | 11% | 175 | 5.160 | 0.029 |
| | Engineering Technicians | 1,725 | 185 | 27 | 13 | 1 | 1 | 1 | | | | | 1,953 | 12% | 228 | 16.014 | 0.070 |
| Transport | Technicians | 1,294 | 279 | 97 | 64 | 19 | 14 | 2 | | | | | 1,769 | 27% | 475 | 71.270 | 0.150 |
| | Science Technicians | 448 | 157 | 17 | 3 | | | | | | | | 625 | 28% | 177 | 7.983 | 0.045 |
| | Radiation Monitors/Techs. | 1,082 | 823 | 249 | 64 | 16 | 2 | | | | | | 2,236 | 52% | 1,154 | 102.897 | 0.089 |
| | Health Technicians | 186 | 36 | 2 | | | | | | | | | 224 | 17% | 38 | 1.480 | 0.039 |
| | Misc. Technicians | 1,951 | 232 | 58 | 18 | 8 | 1 | 4 | | | | | 2,272 | 14% | 321 | 32.020 | 0.100 |
| | Bus Drivers | 9 | | | | | | | | | | | 9 | | | | |
| Unknown | Equipment Operators | 259 | 108 | 31 | 8 | 1 | | | | | | | 407 | 36% | 148 | 11.548 | 0.078 |
| | Misc. Transport | 491 | 10 | | | | | | | | | | 501 | 2% | 10 | 0.223 | 0.022 |
| | Pilots | 22 | 1 | | | | | | | | | | 23 | 4% | 1 | 0.017 | 0.017 |
| | Truck Drivers | 820 | 87 | 11 | 3 | | | | | | | | 921 | 11% | 101 | 4.585 | 0.045 |
| Totals | Unknown | 26,115 | 1,275 | 249 | 79 | 6 | 3 | | | | | | 27,727 | 6% | 1,612 | 105.662 | 0.066 |
| Totals | | 78,882 | 10,507 | 1,735 | 564 | 99 | 41 | 11 | | | | | 91,839 | 14% | 12,957 | 863.528 | 0.067 |

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

DOE Occupational Radiation Exposure: 2011 Annual Report
Exhibit B-21. Internal Dose Distribution by Site and Nuclide, 2011.

| Site | Nuclide | Number of Individuals Receiving Doses in Each Dose Range | | | | | | | | | | | Total Indiv. with Meas. CED | Collective CED (person-rem) | Avg. CED (rem) | |
|---|------------|--|------------|------------|-----------|-----------|-----------|---------|---------|---------|---------|------|-----------------------------|-----------------------------|-----------------|----------------|
| | | Meas. 0-0.02 | 0.02-0.10 | 0.10-0.25 | 0.25-0.50 | 0.50-0.75 | 0.75-1.00 | 1.0-2.0 | 2.0-3.0 | 3.0-4.0 | 4.0-5.0 | >5.0 | | | | |
| Argonne National Laboratory | Plutonium | | 2 | | | | | | | | | | | 2 | 0.080 | 0.040 |
| Argonne National Laboratory | Americium | 1 | 1 | | | | | | | | | | | 2 | 0.031 | 0.016 |
| Brookhaven National Laboratory | Other | 1 | | | | | | | | | | | | 1 | 0.001 | 0.001 |
| Hanford - Hanford Site | Plutonium | 12 | 3 | | | | | | | | | | | 15 | 0.115 | 0.008 |
| Hanford - Pacific Northwest National Laboratory | Hydrogen-3 | 1 | | | | | | | | | | | | 1 | 0.001 | 0.001 |
| Hanford - Pacific Northwest National Laboratory | Plutonium | | 1 | | | | | | | | | | | 1 | 0.026 | 0.026 |
| Idaho National Laboratory | Americium | 2 | 4 | | | | | | | | | | | 6 | 0.181 | 0.030 |
| Idaho National Laboratory | Plutonium | 4 | 4 | 2 | | | | | | | | | | 10 | 1.842 | 0.184 |
| Lawrence Livermore National Laboratory | Hydrogen-3 | 18 | | | | | | | | | | | | 18 | 0.030 | 0.002 |
| Los Alamos National Laboratory | Hydrogen-3 | 5 | | | | | | | | | | | | 5 | 0.006 | 0.001 |
| Los Alamos National Laboratory | Mixed | 5 | | | | | | | | | | | | 5 | 0.019 | 0.004 |
| Los Alamos National Laboratory | Plutonium | | 5 | | | | | | | | | | | 5 | 0.199 | 0.040 |
| Los Alamos National Laboratory | Uranium | | 1 | 2 | | | | | | | | | | 3 | 0.324 | 0.108 ◀ |
| Oak Ridge - East Tennessee Technology Park | Uranium | 17 | 4 | | | | | | | | | | | 21 | 0.318 | 0.015 |
| Oak Ridge - Oak Ridge National Laboratory | Thorium | | 1 | | | | | | | | | | | 1 | 0.074 | 0.074 |
| Oak Ridge - Oak Ridge National Laboratory | Americium | | 1 | | | | | | | | | | | 1 | 0.020 | 0.020 |
| Oak Ridge - Y-12 National Security Complex | Americium | 1 | 1 | 1 | | | | | | | | | | 3 | 0.284 | 0.095 |
| Oak Ridge - Y-12 National Security Complex | Mixed | 26 | 9 | 3 | 1 | | | | | | | | | 39 | 1.304 | 0.033 |
| Oak Ridge - Y-12 National Security Complex | Thorium | | 1 | | | | | | | | | | | 1 | 0.091 | 0.091 |
| Oak Ridge - Y-12 National Security Complex | Uranium | 653 | 437 | 97 | 11 | 1 | | | | | | | | 1,199 ◀ | 42.915 ◀ | 0.036 |
| Paducah Gaseous Diffusion Plant | Uranium | 6 | 6 | 1 | | | | | | | | | | 13 | 0.479 | 0.037 |
| Pantex Plant | Mixed | 6 | | | | | | | | | | | | 6 | 0.046 | 0.008 |
| Pantex Plant | Other | 1 | | | | | | | | | | | | 1 | 0.003 | 0.003 |
| Sandia National Laboratory | Other | 1 | | | | | | | | | | | | 1 | 0.004 | 0.004 |
| Savannah River Site | Hydrogen-3 | 6 | | | | | | | | | | | | 6 | 0.021 | 0.004 |
| Savannah River Site | Plutonium | 55 | | | | | | | | | | | | 55 | 0.304 | 0.006 |
| Uranium Mill Tailings Remedial Action Project | Uranium | 59 | 49 | | | | | | | | | | | 108 | 2.279 | 0.021 |
| Site Office Personnel* | Uranium | 1 | | | | | | | | | | | | 1 | 0.015 | 0.015 |
| Totals | | 881 | 530 | 106 | 12 | 1 | | | | | | | | 1,530 | 51.012 | 0.033 |

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

**DOE Occupational Radiation Exposure: 2011 Annual Report
Exhibit B-22. Extremity Dose Distribution by Site, 2011.**

| Site | No. Meas. Dose | Meas. 0-0.1 | 0.10-1 | 1-5 | 5-10 | 10-20 | 20-30 | >30 | Total Monitored* | No. with Meas. | No. Above Monitoring Threshold (5 rems)** | Collective Extremity Dose (person-rem) | Avg. Meas. Extremity Dose (rem) |
|---|----------------|--------------|--------------|------------|-----------|----------|----------|-----|------------------|----------------|---|--|---------------------------------|
| Ames Laboratory | 154 | 8 | | | | | | | 162 | 8 | | 0.330 | 0.041 |
| Argonne National Laboratory | 2,512 | 47 | 56 | 11 | 5 | | | | 2,631 | 119 | 5 | 85.327 | 0.717 |
| Brookhaven National Laboratory | 2,465 | 11 | 32 | 11 | 1 | 1 | | | 2,521 | 56 | 2 | 53.900 | 0.962 |
| Energy Technology Engineering Center | 96 | | | | | | | | 96 | | | | |
| Fermi National Accelerator Laboratory | 1,437 | 3 | 3 | | | | | | 1,443 | 6 | | 0.970 | 0.162 |
| Hanford - Hanford Site | 6,851 | 152 | 267 | 51 | | | | | 7,321 | 470 | | 185.550 | 0.395 |
| Hanford - Office of River Protection | 1,665 | 222 | 247 | 14 | | | | | 2,148 | 483 | | 94.573 | 0.196 |
| Hanford - Pacific Northwest National Laboratory | 1,735 | 109 | 112 | 40 | 3 | | | | 1,999 | 264 | 3 | 148.465 | 0.562 |
| Idaho National Laboratory | 4,928 | 1,990 | 413 | 67 | | | | | 7,398 | 2,470 | | 308.056 | 0.125 |
| Kansas City Plant | 68 | | | | | | | | 68 | | | | |
| Lawrence Berkeley National Laboratory | 762 | 23 | 5 | 6 | | | | | 796 | 34 | | 22.230 | 0.654 |
| Lawrence Livermore National Laboratory | 7,826 | 9 | 28 | 14 | 5 | | | | 7,882 | 56 | 5 | 78.793 | 1.407 |
| Los Alamos National Laboratory | 8059 | 1,084 | 340 | 128 | 16 | | | | 9,627 | 1,568 | 16 | 521.298 | 0.332 |
| National Renewable Energy Laboratory | 14 | | | | | | | | 14 | | | | |
| Nevada National Security Site | 3,033 | 5 | 3 | | | | | | 3,041 | 8 | | 0.943 | 0.118 |
| New Brunswick Laboratory | 65 | 1 | 1 | | | | | | 67 | 2 | | 0.209 | 0.104 |
| Oak Ridge - East Tennessee Technology Park | 1,635 | | | | | | | | 1,635 | | | | |
| Oak Ridge - Oak Ridge Institute for Science and Education | 162 | | | | | | | | 162 | | | | |
| Oak Ridge - Oak Ridge National Laboratory | 9795 | 40 | 84 | 10 | 5 | 1 | | | 9,935 | 140 | 6 | 99.032 | 0.707 |
| Oak Ridge - Y-12 National Security Complex | 6,909 | 11 | 27 | 13 | | | | | 6,960 | 51 | | 39.225 | 0.769 |
| Paducah Gaseous Diffusion Plant | 1236 | | | | | | | | 1,236 | | | | |
| Pantex Plant | 3,068 | 140 | 137 | 41 | 1 | | | | 3,387 | 319 | 1 | 142.312 | 0.446 |
| Portsmouth Gaseous Diffusion Plant | 2,844 | 2 | | | | | | | 2,846 | 2 | | 0.090 | 0.045 |
| Princeton Plasma Physics Laboratory | 366 | | | | | | | | 366 | | | | |
| Sandia National Laboratory | 2,992 | | | | | | | | 2,992 | | | | |
| Savannah River Site | 6,779 | 253 | 669 | 169 | 17 | 2 | 3 | | 7,892 | 1,113 | 22 | 781.700 | 0.702 |
| Separations Process Research Unit | 276 | | | | | | | | 276 | | | | |
| SLAC National Accelerator Laboratory | 2,491 | | | | | | | | 2,491 | | | | |
| Thomas Jefferson National Accelerator Facility | 1,671 | | | | | | | | 1,671 | | | | |
| Uranium Mill Tailings Remedial Action Project | 200 | | | | | | | | 200 | | | | |
| Waste Isolation Pilot Plant | 1,033 | | | | | | | | 1,033 | | | | |
| West Valley Demonstration Project | 505 | 34 | 20 | | | | | | 559 | 54 | | 5.550 | 0.103 |
| Site Office Personnel* | 954 | 27 | 3 | | | | | | 984 | 30 | | 1.673 | 0.056 |
| Totals | 84,586 | 4,171 | 2,447 | 575 | 53 | 4 | 3 | | 91,839 | 7,253 | 60 | 2,570.226 | 0.354 |

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

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

*** Includes service center personnel from Albuquerque and Oak Ridge.

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