REPORT ON OCCUPATIONAL RADIATION EXPOSURES IN CANADA 2018

NATIONAL DOSE REGISTRY

RADIATION PROTECTION BUREAU

ENVIRONMENTAL AND RADIATION HEALTH SCIENCES DIRECTORATE

HEALTHY ENVIRONMENTS AND CONSUMER SAFETY BRANCH

2018

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SUMMARY

The National Dose Registry is Canada's national repository for dose records of Canadian workers. It is administered by Health Canada's Radiation Protection Bureau and supports Health Canada and Canadian regulatory authorities in their mandates to protect the health and safety of Canadians exposed to ionizing radiation in the workplace including, but not limited to, nuclear power plants, uranium mines, dental offices, and hospitals. It has been in continuous operation since 1951 and now contains the records of about one million individuals who have been monitored for ionizing radiation exposure as part of their jobs, including close to 170,000 members of the present-day workforce.

The 2018 Report on Occupational Radiation Exposures in Canada provides up-to-date statistics on occupational radiation exposures of monitored workers in Canada, spanning the period from 2007–2017, with a focus on 2017. The report was developed primarily to summarize data from the National Dose Registry for use by regulatory authorities and facilitate analysis of national, regional, and sectoral trends. It may also be useful for researchers, employers and workers.

In 2017, dose records from a total of 168,895 unique workers (median age 39y, 59% female) were reported to the National Dose Registry. From this number, 155,717 were monitored to ascertain effective dose (whole body), while the remaining were mainly monitored for extremities (hands and feet). Ontario had the highest number of monitored workers, followed by Quebec and Alberta.

Approximately 80% of the effective doses reported to the NDR were zero. The collective effective dose recorded in the National Dose Registry for 2017 was 41.57 person.Sv, and the mean annual effective dose was 0.24 mSv. The mean non-zero annual effective dose was 1.19 mSv. More than half (58%) of the monitored workers in 2017 were from the medical sector, followed by the nuclear sector at 16%. With a few exceptions, mean doses for each job sector tended to decrease over the last 11-year period. The five job categories with the highest mean effective dose in 2017 were: Reactor — Fuel Handling (2.39 mSv); Reactor — Contractor (1.80 mSv); Reactor — Mechanical maintenance (1.71 mSv); Reactor –Construction (1.65 mSv) and Industrial radiographer (1.41 mSv).

LIST OF ABBREVIATIONS

Alta:	Alberta
BC:	British Columbia
Man:	Manitoba
mSv:	millisievert
NDR:	National Dose Registry
NL:	Newfoundland and Labrador
NB:	New Brunswick
NS:	Nova Scotia
Ont:	Ontario
Part Accel:	Particle Accelerator
PEI:	Prince Edward Island
Que:	Quebec
Sask:	Saskatchewan
Terr:	Territories (including Yukon, Northwest Territories and Nunavut)
U:	Uranium
WLM:	Working Level Month

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DEFINITIONS

Effective dose: A measure of dose designed to reflect the amount of radiation detriment. The effective dose is obtained by multiplying the equivalent dose of each tissue or organ by an appropriate tissue weighting factor and summing the products. The equivalent dose is the absorbed dose weighted for the degree of biological effectiveness of different radiations. The absorbed dose can be defined as the radiation energy absorbed per unit mass of a substance (such as human tissue).

Source: http://nuclearsafety.gc.ca/eng/resources/radiation/introduction-to-radiation/nuclear-and-radiation-glossary.cfm#effective_dose

Effective collective dose (collective dose): The sum of all effective doses of all workers in a defined group for a given year.

Job Sectors: Grouping of similar job categories (for a complete list of job categories by sector, see Appendix A):

Accelerator: Job categories where work is being performed in a particle accelerator environment. Includes scientists, technicians, maintenance staff, etc.

Industry: Industrial activities involving ionizing radiation that are not related to a nuclear reactor/power plant.

Medical: Work done with ionizing radiation in the human health sector, including environments such as hospitals, research centres, laboratories, dental and veterinarian clinics, etc.

Mining: All job categories in the uranium mining industry, as well as non-uranium mining activities where ionizing radiation is present.

Nuclear: Work done in and around nuclear power generating stations, including operation and maintenance, fuel handling, waste management, transport, etc.

Shared: Includes mainly support staff (such as administrative staff, students and inspectors) that can be found in the majority of workplaces, not already included in another job sector.

Non-zero dose: A dose reported as different (greater) than zero.

INTRODUCTION

The National Dose Registry (NDR) is the national repository for occupational dose records for Canadian workers. It is administered by Health Canada's Radiation Protection Bureau. It has been in continuous operation since 1951 and now contains the records of about one million individuals who have been monitored for radiation exposure as part of their jobs, including close to 170,000 members of the present-day workforce.

The main functions of the NDR are to:

- assist regulatory authorities by evaluating dose trends and statistics, and by notifying them of overexposures within their jurisdiction;
- contribute to health research and scientific knowledge about risks from occupational exposure to ionizing radiation; and
- provide dose histories to individual workers and organizations for work planning, and for compensation and litigation cases.

The 2018 Report on Occupational Radiation Exposures in Canada provides up-to-date statistics on occupational radiation exposures of monitored workers in Canada, spanning the period from 2007–2017, with a focus on 2017. This information will assist regulatory authorities, organizations, and private individuals in comparing incurred occupational radiation exposures with national, regional, and sectoral means and trends.

The 2018 report is a series of tables describing the current workforce, as reflected in the NDR, and enumerating mean doses by type of job and/or location of work. Tables 2 to 4 present data by "job sector" in order to facilitate reading the tables and comparing the high-level results within them. Appendix A contains a list of the job categories included in each job sector, and Appendices B and C break down the information in Tables 2 and 4 by job category and present additional dose information in graph form.

Moving forward, NDR will issue summary reports like this one and make use of the Government of Canada's Open Data portal to make summary data sets available electronically. Specific aggregate data can also be requested from the NDR using the contact information below.

This report and previous editions can be found on the *Government of Canada Publications* website (http://publications.gc.ca/site/eng/411512/publication.html) or by sending a request to the NDR:

National Dose Registry
Health Canada
Radiation Protection Building
775 Brookfield Road, AL 6302D
Ottawa (Ontario)
K1A 1C1
Email: hc.ndr-fdn.sc@canada.ca
Fax: 613-957-0960

GENERAL COMMENTS AND LIMITATIONS

The data presented in this report were extracted from the NDR on March 18th, 2019. Changes made after this date are not reflected in the report. Being an operational database, the NDR is constantly and regularly updated. The most frequent causes for changes to a record in the database are:

- dose corrections (including, but not limited to, situations where dose is judged to be non-personal after investigation);
- updates to a worker's job category;
- dosimeters or data returned late; and
- quality assurance improvements.

The 2018 edition of the report contains significant updates to some of the summaries published in 2017. Since June 2017, when data for the last report were extracted, the NDR has received a large number of late submissions from Dosimetry Service Providers: nearly 110,000 unique doses, attributed to approximately 35,000 workers. More than 99,000 of these doses were acquired in the year 2016, which is the reference year for the 2017 report. The rest of the doses are spanning from 2006 to 2015. This is why, for example, there is a difference in the number of workers and mean doses in Table 4 of the current report compared to the 2017 report. NDR continues to work closely with these Dosimetry Service Providers to help them clear their backlogs and enter the late doses into the database.

It is important to note that the regulations and requirements for monitoring differ between jurisdictions, and some do not require dose reporting to the NDR. This can impact the completeness of the datasets used for some job sectors and categories, particularly where x-rays are the primary source of exposure.

Doses are submitted to the NDR by licensed Dosimetry Service Providers, who measure, monitor and report ionizing radiation doses in accordance with regulatory requirements set by the Canadian Nuclear Safety Commission (CNSC). These service providers include commercial processors, as well as in-house services operated by, for example, nuclear power generating stations and uranium mines.

All doses in this report are reported as effective dose, in International System (SI) units. For a given individual, if effective doses due to more than one type of radiation are of relevance, and such doses have been measured or calculated separately, then these doses have been added together in reporting the final effective dose value for the individual. Examples of doses that may have been summed together include:

- External whole body gamma
- External whole body high energy beta
- External whole body X-ray
- External whole body neutron
- Internal whole body tritium, as determined by urinalysis
- Radon progeny exposures, converted from WLM values (see below).

In the report, the radon progeny exposures are converted to mSv. The conversion used in this report is 5 mSv/Working Level Month (WLM), in accordance with the *Radiation Protection Regulations* under the *Nuclear Safety and Control Act*. Skin doses and extremity doses are not included in the report but are recorded in the database.

For the external whole body doses, some Dosimetry Service Providers have set reporting thresholds ranging from 0.01 to 0.1 mSv, after background subtraction, and report doses below the threshold as zero. Others will calculate doses for workers based on area monitors or other methods and will not have a reporting threshold. In calculating descriptive dose statistics, all dose values have been used as reported.

This report is based on data as reported to the NDR with the presumption that dosimeters were worn properly and in accordance with regulations. In certain cases, exposures may have been over or under estimated if the dosimeter was not worn properly. The wearing period may also influence the reported doses. Since some Dosimetry Service Providers have a reporting threshold and are reporting dose values under that threshold as zero, it is possible that, for a given exposure rate, a longer wearing period could result in a dose that just exceeds the reporting threshold (and thus resulting in a non-zero dose), while a shorter wearing period for that same exposure rate may not result in a dose that exceeds the reporting threshold (and thus the dose would be reported as zero). Finally, doses are assigned to the year in which the dosimeter was issued (with some exceptions), even though some of the dosimeters may actually have been worn during part of the subsequent year.

The province that is listed alongside a given dose in the NDR database may not always represent the province in which the radiation work has been performed. For example, a company based in one province could send workers to another province but report the dose as coming from the company's home province.

Workers may not always be assigned to job categories the same way by all employers. Job category designations are selected by each employer based on a standard list maintained by the NDR. Some have their own job classifications schemes and translate them into the NDR's standardized list prior to submission of the records.

A worker who has performed different types of work or who has been monitored by more than one Dosimetry Service Provider can have records under more than one job category or province for the same year. As a result, it should be noted that, in the tables, a worker is counted more than once if he (she) has worked in more than one job category or sector or in more than one province. For this reason, the totals and subtotals in the tables may appear to be inconsistent.

Finally, due to privacy considerations, some data were grouped or omitted to minimise the risk of re-identification, when counts (or figures) were too small.

2017 FINAL DATA

A total of 168,895 unique workers were monitored by the NDR during the year 2017. Table 1 presents the general characteristics of these workers, grouped by province. The three territories have been combined in order to respect privacy requirements. The total number of workers for Canada reported in the table is slightly higher than the number of unique workers monitored due to some individuals doing work in more than one province/territory. In this case, they are counted in each province/territory.

Table 1: Characteristics of workers by province/territories

Province	Workers (n)	Sex (M/F)	Age (median years)	Collective Dose (person.Sv)	Mean effective Dose (mSv)	Mean effective non-Zero Dose (mSv)
NL	2315	662 / 1653	37	0.17	0.07	0.39
PEI	290	55 / 235	37	0.03	0.10	0.49
NS	3160	793 / 2367	39	0.42	0.13	1.02
NB	3569	2434 / 1135	41	0.66	0.18	0.75
Que	37334	9835 / 27499	37	3.32	0.09	0.84
Ont	76648	40068 / 36580	41	30.34	0.40	1.63
Man	6043	1517 / 4526	38	0.26	0.04	0.51
Sask	7220	4224 / 2996	38	2.36	0.33	0.63
Alta	21664	5770 / 15894	36	3.04	0.14	0.76
BC	11206	3616 / 7590	38	0.97	0.09	0.41
Territories	485	103 / 382	41	0.01	0.03	0.46
Canada	**169934**	**69077 / 100857**	**39**	**41.57**	**0.24**	**1.19**

For Tables 2 to 4, job categories have been combined into sectors. Appendix A lists the job sectors and the categories included in each.

Table 2 shows dose information for each sector, as well as the number of workers who fall into different dose ranges. Doses below the reporting threshold of the Dosimetry Service Provider (when applicable) are considered zeros. For distribution of doses by individual job categories, see Appendix B.

Table 2: Breakdown of annual effective doses by job sector for all of Canada

Sector*	Workers (n)	Collective Dose (person.Sv)	Mean Effective Dose (mSv)	Mean Effective Non-Zero Dose (mSv)	Distribution of workers per dose range (n)						
					0	>0–1	>1–5	>5–10	>10–15	>15–20	>20
Accelerator	1185	0.10	0.09	0.21	689	463	32	1	0	0	0
Industry	19333	6.06	0.31	0.77	11464	6449	1191	175	44	8	2
Medical	100431	7.32	0.07	0.59	88104	10526	1634	125	27	7	8
Mining	3564	1.98	0.56	0.62	392	2535	630	7	0	0	0
Nuclear	27885	25.23	0.90	2.77	18782	4118	3201	1320	315	114	35
Shared	20308	0.87	0.04	0.40	18121	2027	149	8	2	0	1
Total	**172706**	**41.57**	**0.24**	**1.18**	**137552**	**26118**	**6837**	**1636**	**388**	**129**	**46**

* Individuals working in 2 (or more) different job sectors are counted in each job sector

Table 3 shows the mean doses for each province and the territories by job sector. Territories have been combined due to small numbers. For privacy reasons, mean doses for very small sample sizes are not shown (represented by a dash sign).

Table 3: Number of workers and mean annual effective doses by job sector and province/territories

Job sector*	NL	PEI	NS	NB	Que	Ont	Man	Sask	Alta	BC	Terr	Canada
Accelerator												
Workers (n)	0	0	2	0	0	1	0	160	0	1022	0	**1185**
Mean dose (mSv)	–	–	–	–	–	–	–	0.01	–	0.10	–	**0.09**
Mean Non-Zero Dose (mSv)	–	–	–	–	–	–	–	0.05	–	0.22	–	**0.21**
Industry												
Workers (n)	244	13	392	252	2668	11000	290	628	2862	1121	27	**19497**
Mean dose (mSv)	0.12	0.06	0.09	0.16	0.27	0.24	0.06	0.36	0.76	0.16	0.16	**0.31**
Mean Non-Zero Dose (mSv)	0.27	0.24	0.47	0.56	1.21	0.48	0.32	1.33	1.87	0.86	0.72	**0.77**
Medical												
Workers (n)	1815	246	2449	925	28665	33482	5126	2597	16830	8241	433	**100809**
Mean dose (mSv)	0.07	0.11	0.15	0.05	0.08	0.08	0.04	0.07	0.04	0.06	0.02	**0.07**
Mean Non-Zero Dose (mSv)	0.44	0.52	1.17	0.41	0.79	0.74	0.54	0.46	0.30	0.33	0.38	**0.59**
Mining												
Workers (n)	0	0	0	0	99	15	0	3440**	0	12	0	**3566**
Mean dose (mSv)	–	–	–	–	0.48	0	–	0.56	–	0	–	**0.56**
Mean Non-Zero Dose (mSv)	–	–	–	–	0.63	–	–	0.62	–	–	–	**0.62**
Nuclear												
Workers (n)	0	0	0	2271	657	25129	0	0	0	2	0	**28059**
Mean dose (mSv)	–	–	–	0.25	0.01	0.98	–	–	–	–	–	**0.90**
Mean Non-Zero Dose (mSv)	–	–	–	0.85	0.42	2.92	–	–	–	–	–	**2.77**
Shared												
Workers (n)	296	32	358	137	6196	8721	736	478	2438	921	26	**20339**
Mean dose (mSv)	0.03	0.01	0.07	0.01	0.03	0.04	0.03	0.04	0.05	0.16	0.03	**0.04**
Mean Non-Zero Dose (mSv)	0.31	0.12	0.87	0.19	0.55	0.28	0.40	0.39	0.32	2.51	0.72	**0.40**

* Individuals working in 2 (or more) different job sectors and/or provinces/territories are counted in each job sector/province/territory.

** Due to a high number of individuals working for more than one employer in this job sector and province, this number has been calculated differently in the 2018 report (compared to the 2017 report), to better reflect the actual number of unique workers. Using this method, the 2017 number in this sector and province would have been 4706 instead of 8292.

Table 4 summarizes the mean dose data by job sector for 2007 to 2017. Information broken down further by job categories within the job sectors can be found in Appendix C.

Table 4: Eleven-year trend of number of workers and mean effective annual doses by job sector for all of Canada

Year		Accelerator	Industry	Medical	Mining	Nuclear	Shared	Total
2007	**Workers (n)**	857	25878	89515	4847	24382	22590	163947
	Mean dose (mSv)	0.37	0.48	0.10	0.70	1.05	0.05	0.32
	Mean Non-Zero Dose (mSv)	0.86	1.24	0.74	0.91	2.77	0.53	1.40
2008	**Workers (n)**	840	26002	91387	5604	26524	21713	168042
	Mean dose (mSv)	0.28	0.53	0.10	0.63	1.10	0.05	0.34
	Mean Non-Zero Dose (mSv)	0.35	1.34	0.75	0.75	2.97	0.55	1.44
2009	**Workers (n)**	832	24239	88925	5228	28106	21466	165236
	Mean dose (mSv)	0.24	0.50	0.10	0.75	0.98	0.04	0.32
	Mean Non-Zero Dose (mSv)	0.85	1.23	0.75	0.89	2.67	0.44	1.40
2010	**Workers (n)**	949	23727	90698	5002	28145	21798	166372
	Mean dose (mSv)	0.20	0.50	0.09	0.82	0.95	0.05	0.31
	Mean Non-Zero Dose (mSv)	1.01	1.26	0.72	0.94	2.70	0.53	1.41
2011	**Workers (n)**	1055	23629	91850	5813	26501	22313	167415
	Mean dose (mSv)	0.17	0.50	0.11	0.73	1.09	0.06	0.34
	Mean Non-Zero Dose (mSv)	0.42	1.27	0.83	0.82	2.95	0.56	1.46
2012	**Workers (n)**	1059	23353	93029	6603	25320	22317	167891
	Mean dose (mSv)	0.17	0.54	0.09	0.59	1.04	0.04	0.31
	Mean Non-Zero Dose (mSv)	0.25	1.41	0.78	0.67	2.86	0.44	1.39
2013	**Workers (n)**	1120	22889	93123	7484	22214	21276	164291
	Mean dose (mSv)	0.17	0.48	0.07	0.58	0.79	0.04	0.25
	Mean Non-Zero Dose (mSv)	0.39	1.24	0.61	0.69	2.47	0.38	1.13
2014	**Workers (n)**	1098	21657	94568	6187	22770	20764	163653
	Mean dose (mSv)	0.13	0.49	0.08	0.64	0.70	0.04	0.24
	Mean Non-Zero Dose (mSv)	0.19	1.21	0.71	0.74	2.26	0.40	1.13
2015	**Workers (n)**	1109	20368	90653	6196	23771	20106	158850
	Mean dose (mSv)	0.11	0.43	0.06	0.72	0.72	0.04	0.23
	Mean Non-Zero Dose (mSv)	0.25	1.02	0.58	0.84	2.41	0.35	1.12
2016	**Workers (n)**	1133	19608	97089	4837	26894	20658	166366
	Mean dose (mSv)	0.09	0.32	0.08	0.63	0.73	0.04	0.23
	Mean Non-Zero Dose (mSv)	0.28	0.78	0.62	0.71	2.32	0.32	1.05
2017	**Workers (n)**	1185	19333	100431	3564	27885	20308	168900
	Mean dose (mSv)	0.09	0.31	0.07	0.56	0.90	0.04	0.25
	Mean Non-Zero Dose (mSv)	0.21	0.77	0.59	0.62	2.77	0.40	1.19

APPENDIX A

Classification of Job Categories by Sectors

Job Sector	Job Categories
Accelerator	PARTICLE ACCELERATOR — SCIENTIFIC/PROFESSIONAL
	PARTICLE ACCELERATOR — ADMINISTRATION
	PARTICLE ACCELERATOR — HEALTH PHYSICS
	PARTICLE ACCELERATOR — CHEMICAL AND RADIATION CONTROL
	PARTICLE ACCELERATOR — ELECTRICAL MAINTENANCE
	PARTICLE ACCELERATOR — MECHANICAL MAINTENANCE
	PARTICLE ACCELERATOR — GENERAL MAINTENANCE
	PARTICLE ACCELERATOR — OPERATIONS
	PARTICLE ACCELERATOR — CONTROL TECHNICIANS
	PARTICLE ACCELERATOR — ELECTRICAL TECHNICIANS
	PARTICLE ACCELERATOR — MECHANICAL TECHNICIANS
	PARTICLE ACCELERATOR — DESIGNERS
	PARTICLE ACCELERATOR — MACHINISTS
	PARTICLE ACCELERATOR — CONTRACTOR
	PARTICLE ACCELERATOR — STUDENT
	PARTICLE ACCELERATOR — TRAINING
	PARTICLE ACCELERATOR — CONSTRUCTION
	PARTICLE ACCELERATOR — VISITOR
Industry	DIAL PAINTER
	INSTRUCTOR (NON-MEDICAL)
	INSTRUMENT TECHNICIAN
	LABORATORY TECHNICIAN (INDUSTRIAL)
	WELL LOGGER
	INDUSTRIAL RADIOGRAPHER
	SCIENTIST ENGINEER (FIELD)
	SCIENTIST/ENGINEER (LABORATORY)
	OTHER (INDUSTRIAL)
	FUEL PROCESSOR
	JANITORIAL STAFF
	SALESPERSON
	TRADESMAN
	GROUND TRANSPORTATION
	SECURITY
	AIRCREW

Job Sector	Job Categories
Medical	CHIROPRACTOR
	DENTIST
	GYNAECOLOGIST
	LABORATORY TECHNICIAN (MEDICAL)
	MEDICAL PHYSICIST
	NURSE
	PHYSICIAN
	RADIOLOGICAL TECHNOLOGIST
	RADIATION THERAPIST
	RADIOLOGIST (DIAGNOSTIC)
	RADIOLOGIST (THERAPEUTIC)
	VETERINARIAN
	WARD AID/ORDERLY
	OTHER (MEDICAL)
	NUCLEAR MEDICINE TECHNOLGIST
	DENTAL HYGIENIST
	DENTAL ASSISTANT
	DENTAL THERAPIST/NURSE
	SPEECH-LANGUAGE PATHOLOGIST
	CHIROPRACTOR ASSISTANT
	VETERINARY TECHNICIAN
Mining	URANIUM MINE UNDERGROUND PERSONNEL
	URANIUM MINE SURFACE PERSONNEL
	URANIUM MINE VISITORS
	URANIUM MINE OFFICE STAFF
	URANIUM MINE UNDERGROUND MINER
	URANIUM MINE NURSES
	URANIUM MINE SUPPORT WORKERS
	URANIUM MINE UNDERGROUND MAINTENANCE
	URANIUM MINE ELECTRICIAN
	URANIUM MINE SURFACE MINER
	URANIUM MINE SURFACE SUPPORT WORKERS
	URANIUM MINE SURFACE MAINTENANCE
	URANIUM MINE MILL MAINTENANCE
	URANIUM MINE MILL WORKERS
	NON URANIUM MINE SURFACE PERSONNEL
	NON URANIUM MINE UNDERGROUND MINER
	NON URANIUM MINE SURFACE MAINTENANCE
	NON URANIUM MINE MILL WORKERS
	NON URANIUM MINE VISITORS

Job Sector	Job Categories
Nuclear	REACTOR — SCIENTIFIC/PROFESSIONAL
	REACTOR — ADMINISTRATION
	REACTOR — HEALTH PHYSICS
	REACTOR — CHEMICAL AND RADIATION CONTROL
	REACTOR — ELECTRICAL MAINTENANCE
	REACTOR — INDUSTRIAL RADIOGRAPHER
	REACTOR — MECHANICAL MAINTENANCE
	REACTOR — GENERAL MAINTENANCE
	REACTOR — FUEL HANDLING
	REACTOR — OPERATIONS
	REACTOR — CONTROL TECHNICIANS
	REACTOR — CONTRACTOR
	REACTOR — SUMMER STUDENT
	REACTOR — TRAINING
	REACTOR — CONSTRUCTION
	REACTOR — VISITOR
Shared	UNKNOWN
	ADMINISTRATOR
	OFFICE STAFF
	SAFETY OFFICER
	OTHER (ADMINISTRATION)
	STUDENT
	VISITOR
	OTHER (MISCELLANEOUS)
	INSPECTOR

APPENDIX B

Breakdown of annual effective doses by job category for all of Canada for 2017

For privacy reasons, data for very small sample sizes are not shown (represented by a dash sign).

Job Category*	Workers (n)	Collective Effective Dose (person.Sv)	Mean Effective Dose (mSv)	Distribution of workers per dose range (n)						
				0	>0–1	>1–5	>5–10	>10–15	>15–20	>20
Total	172706	41.57	0.24	137552	26118	6837	1636	388	129	46
Accelerator										
Part Accel – Administration	68	0.00	0.01	42	26	0	0	0	0	0
Part Accel – Chemical and Radiation Contro	8	–	–	–	–	–	–	–	–	–
Part Accel – Construction	4	–	–	–	–	–	–	–	–	–
Part Accel – Contractor	90	0.00	0.00	78	12	0	0	0	0	0
Part Accel – Control Technicians	42	0.01	0.03	31	11	0	0	0	0	0
Part Accel – Designers	26	0.00	0.03	16	10	0	0	0	0	0
Part Accel – Electrical Maintenance	8	–	–	–	–	–	–	–	–	–
Part Accel – Electrical Technicians	13	0.00	0.06	6	7	0	0	0	0	0
Part Accel – General Maintenance	21	0.05	0.22	5	14	2	0	0	0	0
Part Accel – Health Physics	2	–	–	–	–	–	–	–	–	–
Part Accel – Machinists	26	0.06	0.23	13	10	3	0	0	0	0
Part Accel – Mechanical Maintenance	6	–	–	–	–	–	–	–	–	–
Part Accel – Mechanical Technicians	90	0.04	0.41	38	39	12	1	0	0	0
Part Accel – Operations	62	0.02	0.32	19	36	7	0	0	0	0
Part Accel – Scientific/ Professional	379	0.02	0.05	214	160	5	0	0	0	0
Part Accel – Student	151	0.05	0.03	93	57	1	0	0	0	0
Part Accel – Training	1	–	–	–	–	–	–	–	–	–
Part Accel – Visitor	188	0.02	0.01	117	71	0	0	0	0	0

Job Category*	Workers (n)	Collective Effective Dose (person.Sv)	Mean Effective Dose (mSv)	Distribution of workers per dose range (n)						
				0	>0–1	>1–5	>5–10	>10–15	>15–20	>20
Industry										
Dial Painter	6	–	–	–	–	–	–	–	–	–
Fuel Processor	1098	0.56	0.51	226	666	206	0	0	0	0
Ground Transportation	154	0.04	0.26	95	45	14	0	0	0	0
Industrial Radiographer	1925	2.72	1.41	877	415	460	126	39	7	1
Instructor (Non-Medical)	437	0.01	0.03	419	17	0	1	0	0	0
Instrument Technician	1612	0.19	0.12	1157	411	41	3	0	0	0
Janitorial Staff	43	0.02	0.00	41	2	0	0	0	0	0
Laboratory Technician (Industrial)	1418	0.23	0.16	969	388	61	0	0	0	0
Other (Industrial)	7832	1.67	0.21	4057	3464	273	33	4	1	0
Salesperson	79	0.09	0.12	58	19	2	0	0	0	0
Scientist Engineer (Field)	1339	0.27	0.20	819	467	50	2	0	0	1
Scientist/Engineer (Laboratory)	2267	0.11	0.05	1985	261	21	0	0	0	0
Security	622	0.02	0.03	581	33	8	0	0	0	0
Tradesman	127	0.05	0.04	94	33	0	0	0	0	0
Well Logger	907	0.22	0.24	540	303	58	5	1	0	0

Job Category*	Workers (n)	Collective Effective Dose (person.Sv)	Mean Effective Dose (mSv)	Distribution of workers per dose range (n)						
				0	>0–1	>1–5	>5–10	>10–15	>15–20	>20
Medical										
Chiropractor	1013	0.01	0.01	968	44	1	0	0	0	0
Chiropractor Assistant	36	0.31	0.01	34	2	0	0	0	0	0
Dental Assistant	15938	0.13	0.01	15407	517	13	1	0	0	0
Dental Hygienist	12853	0.09	0.01	12451	394	8	0	0	0	0
Dental Therapist/Nurse	128	0.00	0.01	119	9	0	0	0	0	0
Dentist	8488	0.06	0.01	8279	198	11	0	0	0	0
Gynaecologist	3	–	–	–	–	–	–	–	–	–
Laboratory Technician (Medical)	1055	0.10	0.09	892	135	27	1	0	0	0
Medical Physicist	366	0.02	0.04	311	53	2	0	0	0	0
Nuclear Medicine Technolgist	1783	2.21	1.24	479	551	707	46	0	0	0
Nurse	8436	0.46	0.05	6936	1401	95	3	1	0	0
Other (Medical)	6744	0.78	0.12	5150	1394	183	9	4	2	2
Physician	4284	0.88	0.21	3312	795	134	28	10	3	2
Radiation Therapist	1054	0.05	0.04	846	202	6	0	0	0	0
Radiological Technologist	14438	1.57	0.11	10721	3380	309	20	5	2	1
Radiologist (Diagnostic)	2003	0.46	0.23	1536	390	58	10	7	0	2
Radiologist (Therapeutic)	131	0.02	0.13	105	21	5	0	0	0	0
Speech-Language Pathologist	206	0.01	0.03	190	15	1	0	0	0	0
Veterinarian	7430	0.17	0.02	7063	344	22	0	0	0	1
Veterinary Technician	15249	0.29	0.02	14425	769	54	1	0	0	0
Ward Aid/Orderly	541	0.02	0.04	484	52	5	0	0	0	0

Job Category*	Workers (n)	Collective Effective Dose (person.Sv)	Mean Effective Dose (mSv)	Distribution of workers per dose range (n)						
				0	>0–1	>1–5	>5–10	>10–15	>15–20	>20
Mining										
Non Uranium Mine Mill Workers	88	0.05	0.53	15	55	18	0	0	0	0
Non Uranium Mine Surface Maintenance	11	0.00	0.03	9	2	0	0	0	0	0
Non Uranium Mine Visitors	1	–	–	–	–	–	–	–	–	–
Uranium Mine Electrician	34	0.01	0.37	16	16	2	0	0	0	0
Uranium Mine Mill Maintenance	308	0.19	0.62	20	209	79	0	0	0	0
Uranium Mine Mill Workers	252	0.35	1.39	8	119	122	3	0	0	0
Uranium Mine Nurses	13	0.02	0.17	1	12	0	0	0	0	0
Uranium Mine Office Staff	582	0.08	0.14	82	499	1	0	0	0	0
Uranium Mine Support Workers	374	0.27	0.71	35	243	94	2	0	0	0
Uranium Mine Surface Maintenance	360	0.07	0.21	87	264	9	0	0	0	0
Uranium Mine Surface Miner	16	0.00	0.06	3	13	0	0	0	0	0
Uranium Mine Surface Personnel	485	0.10	0.20	108	369	8	0	0	0	0
Uranium Mine Surface Support Workers	1136	0.22	0.20	201	900	35	0	0	0	0
Uranium Mine Underground Maintenance	357	0.18	0.51	36	263	58	0	0	0	0
Uranium Mine Underground Miner	285	0.35	1.24	13	133	137	2	0	0	0
Uranium Mine Underground Personnel	204	0.10	0.47	38	130	36	0	0	0	0
Uranium Mine Visitors	6	–	–	–	–	–	–	–	–	–

Job Category*	Workers (n)	Collective Effective Dose (person.Sv)	Mean Effective Dose (mSv)	Distribution of workers per dose range (n)						
				0	>0–1	>1–5	>5–10	>10–15	>15–20	>20
Nuclear										
Reactor – Administration	2357	0.33	0.14	2082	196	58	21	0	0	0
Reactor – Chemical And Radiation Control	910	1.12	1.24	349	288	182	91	0	0	0
Reactor – Construction	1651	2.72	1.65	685	380	382	176	28	0	0
Reactor – Contractor	6848	12.31	1.80	3877	1000	1073	517	236	112	33
Reactor – Control Technicians	431	0.29	0.68	221	119	82	9	0	0	0
Reactor – Electrical Maintenance	970	0.54	0.56	579	252	113	26	0	0	0
Reactor – Fuel Handling	86	0.21	2.39	24	19	30	11	2	0	0
Reactor – General Maintenance	1796	0.94	0.52	1222	327	194	52	1	0	0
Reactor – Health Physics	229	0.07	0.29	145	61	22	1	0	0	0
Reactor – Industrial Radiographer	119	0.10	0.81	48	39	30	2	0	0	0
Reactor – Mechanical Maintenance	1511	2.59	1.71	548	350	422	184	7	0	0
Reactor – Operations	2534	2.10	0.83	1263	667	511	83	10	0	0
Reactor – Scientific/ Professional	4378	0.21	0.05	3979	350	44	5	0	0	0
Reactor – Summer Student	359	0.07	0.02	333	24	2	0	0	0	0
Reactor – Training	133	0.08	0.06	117	14	2	0	0	0	0
Reactor – Visitor	5772	1.70	0.29	5071	299	289	96	17	0	0
Shared										
Administrator	693	0.02	0.03	603	87	3	0	0	0	0
Inspector	268	0.03	0.10	243	20	4	1	0	0	0
Office Staff	3583	0.08	0.02	3214	360	9	0	0	0	0
Other (Administration)	567	0.09	0.15	246	309	10	1	1	0	0
Other (Miscellaneous)	561	0.07	0.13	409	131	21	0	0	0	0
Safety Officer	502	0.04	0.07	424	67	11	0	0	0	0
Student	13982	0.52	0.04	12969	916	89	6	1	0	1
Visitor	234	0.03	0.12	94	138	2	0	0	0	0

* Individuals working in 2 (or more) different job categories are counted in each job category.

APPENDIX C

Eleven–year trend of number of workers, mean annual effective doses and mean annual non–zero doses by job category, for all of Canada

For privacy reasons, mean doses for very small sample sizes are not shown (represented by a dash sign).

Job Category*	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Total (n)	163947	168042	165236	166372	167415	167891	164291	163653	158850	166366	168900
Mean Dose (mSv)	0.32	0.34	0.32	0.31	0.34	0.31	0.25	0.24	0.23	0.23	0.25
Mean Non–Zero Dose (mSv)	1.40	1.44	1.40	1.41	1.46	1.39	1.13	1.13	1.12	1.05	1.19
Accelerator Total	***857***	***840***	***832***	***949***	***1055***	***1059***	***1120***	***1098***	***1109***	***1133***	***1185***
Mean Dose (mSv)	*0.37*	*0.28*	*0.24*	*0.20*	*0.17*	*0.17*	*0.17*	*0.13*	*0.11*	*0.09*	*0.09*
Mean Non-Zero Dose (mSv)	*0.86*	*0.35*	*0.85*	*1.01*	*0.42*	*0.25*	*0.39*	*0.19*	*0.25*	*0.28*	*0.21*
Part Accel – Administration	43	47	44	55	58	69	71	69	66	67	68
Mean Dose (mSv)	0.05	0.04	0.01	0.00	0.03	0.02	0.11	0.02	0.01	0.00	0.01
Mean Non-Zero Dose (mSv)	0.18	0.06	0.06	0.08	0.08	0.03	0.23	0.03	0.03	0.02	0.03
Part Accel – Chemical and Radiation Control	5	5	5	9	8	7	7	8	9	9	8
Mean Dose (mSv)	–	–	–	–	–	–	–	–	–	–	–
Mean Non-Zero Dose (mSv)	–	–	–	–	–	–	–	–	–	–	–
Part Accel – Construction	1	–	–	–	8	48	46	6	6	4	4
Mean Dose (mSv)	–	–	–	–	–	0.01	0.00	–	–	–	–
Mean Non-Zero Dose (mSv)	–	–	–	–	–	0.02	0.02	–	–	–	–
Part Accel – Contractor	59	53	52	58	79	78	93	89	80	83	90
Mean Dose (mSv)	0.05	0.05	0.05	0.08	0.07	0.03	0.02	0.03	0.01	0.01	0.00
Mean Non-Zero Dose (mSv)	0.18	0.06	0.24	0.49	0.16	0.04	0.06	0.04	0.04	0.05	0.03
Part Accel – Control Technicians	30	29	30	48	48	45	46	45	41	42	42
Mean Dose (mSv)	0.27	0.22	0.39	0.13	0.10	0.11	0.26	0.13	0.10	0.07	0.03
Mean Non-Zero Dose (mSv)	0.68	0.28	1.30	1.06	0.27	0.22	0.51	0.27	0.35	0.42	0.13
Part Accel – Designers	18	21	22	28	31	34	30	29	28	27	26
Mean Dose (mSv)	0.86	0.50	0.60	0.23	0.14	0.16	0.22	0.14	0.08	0.11	0.03
Mean Non-Zero Dose (mSv)	1.41	0.62	2.21	1.58	0.25	0.17	0.44	0.33	0.26	0.59	0.07
Part Accel – Electrical Maintenance	2	3	3	3	4	5	5	5	5	8	8
Mean Dose (mSv)	–	–	–	–	–	–	–	–	–	–	–
Mean Non-Zero Dose (mSv)	–	–	–	–	–	–	–	–	–	–	–

Job Category*	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Part Accel – Electrical Technicians	3	4	6	6	9	10	8	8	10	11	13
Mean Dose (mSv)	–	–	–	–	–	0.03	–	–	0.02	0.02	0.06
Mean Non-Zero Dose (mSv)	–	–	–	–	–	0.06	–	–	0.03	0.04	0.11
Part Accel – General Maintenance	18	17	16	15	19	18	20	19	18	19	21
Mean Dose (mSv)	1.30	0.70	0.75	0.51	0.68	0.48	0.50	0.24	0.29	0.15	0.22
Mean Non-Zero Dose (mSv)	1.67	0.75	1.09	0.63	0.86	0.48	0.67	0.25	0.38	0.21	0.29
Part Accel – Health Physics	1	1	1	1	3	5	4	3	2	2	2
Mean Dose (mSv)	–	–	–	–	–	–	–	–	–	–	–
Mean Non-Zero Dose (mSv)	–	–	–	–	–	–	–	–	–	–	–
Part Accel – Machinists	25	31	28	28	29	24	23	25	25	24	26
Mean Dose (mSv)	0.30	0.28	0.24	0.30	0.34	0.25	0.38	0.26	0.35	0.29	0.23
Mean Non-Zero Dose (mSv)	1.49	0.34	1.10	1.66	0.65	0.34	1.73	0.36	0.74	1.39	0.45
Part Accel – Mechanical Maintenance	1	3	2	8	7	7	4	4	6	7	6
Mean Dose (mSv)	–	–	–	–	–	–	–	–	–	–	–
Mean Non-Zero Dose (mSv)	–	–	–	–	–	–	–	–	–	–	–
Part Accel – Mechanical Technicians	76	63	65	75	75	72	76	76	74	82	90
Mean Dose (mSv)	1.40	1.01	0.87	0.92	0.73	0.77	0.64	0.38	0.49	0.36	0.41
Mean Non-Zero Dose (mSv)	2.18	1.02	1.49	1.86	0.92	0.97	0.92	0.48	0.76	0.60	0.70
Part Accel – Operations	44	51	50	62	65	62	61	62	64	62	62
Mean Dose (mSv)	1.23	1.18	0.87	0.77	0.50	0.67	0.53	0.71	0.44	0.49	0.32
Mean Non-Zero Dose (mSv)	1.54	1.33	1.24	1.30	0.63	0.75	0.74	0.98	0.67	0.77	0.47
Part Accel – Scientific/ Professional	300	293	302	319	320	309	345	360	353	362	379
Mean Dose (mSv)	0.20	0.16	0.14	0.08	0.08	0.10	0.11	0.05	0.05	0.04	0.05
Mean Non-Zero Dose (mSv)	0.50	0.18	0.60	0.54	0.26	0.15	0.24	0.08	0.12	0.12	0.11
Part Accel – Student	118	112	102	101	119	135	138	148	165	158	151
Mean Dose (mSv)	0.08	0.05	0.03	0.03	0.05	0.05	0.04	0.04	0.03	0.03	0.03
Mean Non-Zero Dose (mSv)	0.23	0.08	0.23	0.30	0.27	0.08	0.16	0.05	0.08	0.12	0.09
Part Accel – Training	1	2	1	1	1	1	1	1	1	1	1
Mean Dose (mSv)	–	–	–	–	–	–	–	–	–	–	–
Mean Non-Zero Dose (mSv)	–	–	–	–	–	–	–	–	–	–	–
Part Accel – Visitor	112	105	103	135	174	130	142	141	156	165	188
Mean Dose (mSv)	0.02	0.06	0.02	0.02	0.04	0.03	0.01	0.03	0.02	0.01	0.01
Mean Non-Zero Dose (mSv)	0.07	0.09	0.09	0.42	0.16	0.05	0.04	0.04	0.05	0.03	0.03

Job Category*	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Industry Total	*25878*	*26002*	*24239*	*23727*	*23629*	*23353*	*22889*	*21657*	*20368*	*19608*	*19333*
Mean Dose (mSv)	*0.48*	*0.53*	*0.50*	*0.50*	*0.50*	*0.54*	*0.48*	*0.49*	*0.43*	*0.32*	*0.31*
Mean Non-Zero Dose (mSv)	*1.24*	*1.34*	*1.23*	*1.26*	*1.27*	*1.41*	*1.24*	*1.21*	*1.02*	*0.78*	*0.77*
Aircrew	16	22	16	7	3	3	1	1	1	0	0
Mean Dose (mSv)	0.26	0.33	0.10	–	–	–	–	–	–	–	–
Mean Non-Zero Dose (mSv)	0.85	0.74	0.56	–	–	–	–	–	–	–	–
Dial Painter	0	1	1	1	1	1	2	2	2	1	6
Mean Dose (mSv)	–	–	–	–	–	–	–	–	–	–	–
Mean Non-Zero Dose (mSv)	–	–	–	–	–	–	–	–	–	–	–
Fuel Processor – Production	0	9	8	11	12	23	0	0	0	0	0
Mean Dose (mSv)	–	–	–	1.04	0.62	0.55	–	–	–	–	–
Mean Non-Zero Dose (mSv)	–	–	–	1.04	0.62	0.55	–	–	–	–	–
Fuel Processor	1257	1479	1308	1210	1186	1158	1312	1277	1346	1207	1098
Mean Dose (mSv)	0.78	1.29	1.44	1.34	1.28	1.67	1.05	1.20	0.89	0.76	0.51
Mean Non-Zero Dose (mSv)	1.46	2.06	2.23	1.95	1.77	2.28	1.37	1.58	1.15	0.99	0.64
Ground Transportation	97	114	130	110	134	118	117	143	151	165	154
Mean Dose (mSv)	0.87	1.05	0.52	0.76	0.63	0.60	0.53	0.51	0.53	0.31	0.26
Mean Non-Zero Dose (mSv)	1.51	1.93	1.14	1.26	1.22	1.17	1.02	1.05	1.15	0.71	0.67
Industrial Radiographer	2860	2845	2776	2689	2911	3040	3132	3023	2826	2500	1925
Mean Dose (mSv)	2.05	2.01	1.55	1.65	1.91	2.16	1.79	1.82	1.59	1.01	1.41
Mean Non-Zero Dose (mSv)	3.57	3.46	2.67	2.94	3.29	3.49	2.98	3.06	2.67	1.87	2.60
Instructor (Non-Medical)	352	393	384	400	412	411	429	428	415	446	437
Mean Dose (mSv)	0.04	0.05	0.04	0.03	0.02	0.01	0.01	0.02	0.03	0.03	0.03
Mean Non-Zero Dose (mSv)	0.37	0.72	0.33	0.37	0.45	0.16	0.35	0.27	0.69	0.48	0.64
Instrument Technician	2162	2070	1867	1867	1912	1959	1806	1649	1539	1453	1612
Mean Dose (mSv)	0.17	0.15	0.21	0.22	0.20	0.17	0.19	0.18	0.13	0.17	0.12
Mean Non-Zero Dose (mSv)	0.58	0.57	0.62	0.69	0.61	0.63	0.67	0.60	0.52	0.60	0.42
Janitorial Staff	109	98	78	80	59	59	46	41	29	45	43
Mean Dose (mSv)	0.08	0.23	0.06	0.24	0.26	0.27	0.21	0.22	0.19	0.03	0.00
Mean Non-Zero Dose (mSv)	0.35	0.85	0.29	0.83	1.68	3.23	0.97	1.50	1.40	0.29	0.11
Laboratory Technician (Industrial)	2924	2721	2538	2409	2275	2257	2174	1878	1616	1489	1418
Mean Dose (mSv)	0.19	0.24	0.24	0.21	0.18	0.15	0.16	0.16	0.15	0.17	0.16
Mean Non-Zero Dose (mSv)	0.70	0.79	0.81	0.66	0.54	0.59	0.54	0.53	0.48	0.48	0.52
Other (Industrial)	7988	8843	8245	8288	8391	8151	8207	7711	7368	7463	7832
Mean Dose (mSv)	0.32	0.38	0.42	0.40	0.33	0.26	0.23	0.22	0.23	0.22	0.21
Mean Non-Zero Dose (mSv)	0.80	0.87	0.95	0.93	0.82	0.65	0.59	0.53	0.49	0.47	0.44
Salesperson	55	114	114	111	86	65	58	68	80	78	79
Mean Dose (mSv)	0.13	0.05	0.13	0.09	0.09	0.14	0.13	0.19	0.12	0.21	0.12
Mean Non-Zero Dose (mSv)	0.66	0.21	0.41	0.30	0.25	0.46	0.53	0.61	0.37	0.62	0.44

Job Category*	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Scientist Engineer (Field)	1672	1649	1661	1619	1600	1670	1638	1525	1501	1465	1339
Mean Dose (mSv)	0.36	0.34	0.32	0.32	0.30	0.27	0.22	0.24	0.22	0.23	0.20
Mean Non-Zero Dose (mSv)	0.72	0.72	0.68	0.73	0.64	0.63	0.53	0.54	0.54	0.55	0.52
Scientist/Engineer (Laboratory)	4061	3856	3483	3317	3081	2956	2613	2419	2142	2295	2267
Mean Dose (mSv)	0.04	0.05	0.05	0.05	0.04	0.06	0.08	0.05	0.07	0.04	0.05
Mean Non-Zero Dose (mSv)	0.32	0.37	0.35	0.47	0.41	0.50	0.65	0.36	0.46	0.28	0.39
Security	219	185	217	212	231	287	292	399	483	538	622
Mean Dose (mSv)	0.02	0.01	0.02	0.03	0.02	0.06	0.04	0.02	0.01	0.03	0.03
Mean Non-Zero Dose (mSv)	0.19	0.20	0.25	0.53	0.24	0.73	0.49	0.30	0.34	0.40	0.49
Tradesman	167	155	165	153	169	206	200	170	158	150	127
Mean Dose (mSv)	0.10	0.16	0.08	0.08	0.10	0.40	1.17	1.42	0.97	0.34	0.04
Mean Non-Zero Dose (mSv)	0.33	0.37	0.25	0.23	0.31	0.91	2.32	2.93	2.41	0.78	0.16
Well Logger	2474	2112	1756	1665	1602	1475	1505	1463	1229	774	907
Mean Dose (mSv)	0.48	0.43	0.35	0.38	0.34	0.31	0.41	0.33	0.18	0.24	0.24
Mean Non-Zero Dose (mSv)	0.74	0.74	0.66	0.74	0.64	0.65	0.88	0.71	0.42	0.55	0.59
Medical Total	*89515*	*91387*	*88925*	*90698*	*91850*	*93029*	*93123*	*94568*	*90653*	*97089*	*100431*
Mean Dose (mSv)	*0.10*	*0.10*	*0.10*	*0.09*	*0.11*	*0.09*	*0.07*	*0.08*	*0.06*	*0.08*	*0.07*
Mean Non-Zero Dose (mSv)	*0.74*	*0.75*	*0.75*	*0.72*	*0.83*	*0.78*	*0.61*	*0.71*	*0.58*	*0.62*	*0.59*
Chiropractor Assistant	57	74	64	72	57	46	45	40	41	42	36
Mean Dose (mSv)	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.01
Mean Non-Zero Dose (mSv)	0.13	0.13	0.13	0.40	–	0.10	0.10	–	–	0.15	0.16
Chiropractor	1146	1150	1133	1117	1080	1063	1042	1035	1002	1025	1013
Mean Dose (mSv)	0.03	0.04	0.03	0.03	0.04	0.04	0.04	0.05	0.05	0.03	0.01
Mean Non-Zero Dose (mSv)	0.48	0.57	0.44	0.53	0.94	0.77	0.47	0.68	1.41	0.48	0.22
Dental Assistant	14158	14343	13597	14122	14184	14301	14851	15271	15279	15364	15938
Mean Dose (mSv)	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Mean Non-Zero Dose (mSv)	0.28	0.25	0.21	0.24	0.19	0.22	0.18	0.28	0.26	0.26	0.25
Dental Hygienist	10117	10340	10054	10617	10958	11343	11761	11949	12223	12382	12853
Mean Dose (mSv)	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.01	0.01
Mean Non-Zero Dose (mSv)	0.43	0.22	0.22	0.24	0.22	0.34	0.31	0.22	0.25	0.25	0.23
Dental Therapist/Nurse	153	140	134	140	164	161	156	144	138	126	128
Mean Dose (mSv)	0.02	0.03	0.03	0.03	0.02	0.01	0.02	0.01	0.01	0.03	0.01
Mean Non-Zero Dose (mSv)	0.23	0.19	0.17	0.24	0.21	0.20	0.18	0.19	0.15	0.27	0.12
Dentist	7832	7879	7676	7834	7841	7779	7968	8055	8127	8311	8488
Mean Dose (mSv)	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Mean Non-Zero Dose (mSv)	0.35	0.25	0.22	0.24	0.23	0.33	0.27	0.27	0.25	0.30	0.27
Gynaecologist	11	11	7	4	3	6	4	3	5	5	3
Mean Dose (mSv)	0.01	0.00	–	–	–	–	–	–	–	–	–
Mean Non-Zero Dose (mSv)	0.12	–	–	–	–	–	–	–	–	–	–

Job Category*	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Laboratory Technician (Medical)	2924	2757	2446	2246	2048	1800	1540	1452	1154	1170	1055
Mean Dose (mSv)	0.09	0.09	0.10	0.09	0.11	0.10	0.07	0.12	0.08	0.10	0.09
Mean Non-Zero Dose (mSv)	0.75	0.71	0.74	0.65	0.82	0.74	0.60	0.96	0.54	0.62	0.61
Medical Physicist	443	438	364	364	400	416	409	402	306	383	366
Mean Dose (mSv)	0.04	0.03	0.13	0.03	0.09	0.05	0.03	0.05	0.04	0.05	0.04
Mean Non-Zero Dose (mSv)	0.40	0.32	1.04	0.23	0.62	0.42	0.26	0.30	0.19	0.26	0.27
Nuclear Medicine Technologist	1907	1928	1844	1880	1956	2025	1914	1842	1683	1811	1783
Mean Dose (mSv)	1.51	1.54	1.37	1.31	1.39	1.28	1.25	1.23	1.23	1.32	1.24
Mean Non-Zero Dose (mSv)	1.99	2.02	1.81	1.72	1.82	1.74	1.69	1.73	1.67	1.70	1.69
Nurse	7802	8139	8014	7862	8007	7997	7505	7587	6583	8166	8436
Mean Dose (mSv)	0.08	0.09	0.11	0.12	0.12	0.09	0.07	0.05	0.04	0.07	0.05
Mean Non-Zero Dose (mSv)	0.42	0.51	0.55	0.58	0.59	0.55	0.42	0.34	0.23	0.36	0.31
Other (Medical)	9018	8976	8251	7916	7697	7696	7263	6990	5650	6154	6744
Mean Dose (mSv)	0.16	0.15	0.14	0.13	0.15	0.13	0.09	0.25	0.10	0.11	0.12
Mean Non-Zero Dose (mSv)	0.68	0.65	0.60	0.59	0.67	0.59	0.40	1.11	0.39	0.43	0.49
Physician	3220	3376	3315	3383	3439	3479	3357	3433	2994	4066	4284
Mean Dose (mSv)	0.30	0.30	0.42	0.36	0.44	0.32	0.22	0.19	0.23	0.26	0.21
Mean Non-Zero Dose (mSv)	1.19	1.14	1.49	1.41	1.70	1.36	0.97	0.89	0.99	1.09	0.91
Radiation Therapist	1661	1749	1476	1497	1481	1432	1370	1296	942	1179	1054
Mean Dose (mSv)	0.07	0.05	0.11	0.04	0.12	0.04	0.03	0.07	0.06	0.03	0.04
Mean Non-Zero Dose (mSv)	0.34	0.24	0.51	0.24	0.65	0.26	0.21	0.35	0.27	0.20	0.22
Radiological Technologist	13716	14042	13741	13923	14168	14152	13824	14133	13263	14184	14438
Mean Dose (mSv)	0.09	0.10	0.10	0.09	0.11	0.10	0.09	0.09	0.09	0.11	0.11
Mean Non-Zero Dose (mSv)	0.40	0.44	0.45	0.44	0.51	0.48	0.41	0.42	0.41	0.41	0.42
Radiologist (Diagnostic)	2033	2030	1918	2098	2221	2191	2025	2007	1707	2060	2003
Mean Dose (mSv)	0.32	0.44	0.29	0.26	0.38	0.34	0.23	0.27	0.14	0.30	0.23
Mean Non-Zero Dose (mSv)	1.45	2.06	1.29	1.26	1.76	1.90	1.05	1.34	0.65	1.21	0.98
Radiologist (Therapeutic)	203	222	179	176	192	194	168	147	118	147	131
Mean Dose (mSv)	0.16	0.14	0.06	0.07	0.11	0.07	0.33	0.33	0.08	0.13	0.13
Mean Non-Zero Dose (mSv)	1.24	0.80	0.36	0.37	0.55	0.47	1.59	1.58	0.44	0.82	0.65
Speech-Language Pathologist	79	106	112	125	139	125	135	146	169	184	206
Mean Dose (mSv)	0.01	0.01	0.01	0.00	0.01	0.01	0.01	0.01	0.01	0.02	0.03
Mean Non-Zero Dose (mSv)	0.18	0.11	0.16	0.16	0.19	0.20	0.11	0.15	0.14	0.18	0.33
Veterinarian	5851	5952	6064	6259	6422	6535	6799	6897	6982	7249	7430
Mean Dose (mSv)	0.01	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.02	0.02
Mean Non-Zero Dose (mSv)	0.24	0.31	0.29	0.31	0.39	0.33	0.27	0.32	0.35	0.33	0.46

Job Category*	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Veterinary Technician	8058	8784	9226	9939	10636	11318	12099	12811	13395	14217	15249
Mean Dose (mSv)	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.02
Mean Non-Zero Dose (mSv)	0.27	0.34	0.28	0.26	0.32	0.34	0.27	0.31	0.32	0.36	0.36
Ward Aid/Orderly	1096	1037	953	908	854	829	721	664	500	572	541
Mean Dose (mSv)	0.04	0.05	0.04	0.04	0.04	0.02	0.03	0.04	0.05	0.04	0.04
Mean Non-Zero Dose (mSv)	0.41	0.42	0.34	0.31	0.35	0.31	0.32	0.34	0.44	0.38	0.39
Mining Total	*4847*	*5604*	*5228*	*5002*	*5813*	*6603*	*7484*	*6187*	*6196*	*4837*	*3564*
Mean Dose (mSv)	*0.70*	*0.63*	*0.75*	*0.82*	*0.73*	*0.59*	*0.58*	*0.64*	*0.72*	*0.63*	*0.56*
Mean Non-Zero Dose (mSv)	*0.91*	*0.75*	*0.89*	*0.94*	*0.82*	*0.67*	*0.69*	*0.74*	*0.84*	*0.71*	*0.62*
Non Uranium Mine Mill Workers	0	0	0	0	0	0	82	94	95	92	88
Mean Dose (mSv)	–	–	–	–	–	–	0.14	0.57	0.46	0.53	0.53
Mean Non-Zero Dose (mSv)	–	–	–	–	–	–	0.28	0.76	0.66	0.64	0.64
Non Uranium Mine Surface Maintenance	0	0	0	0	0	0	8	12	12	11	11
Mean Dose (mSv)	–	–	–	–	–	–	–	0.24	0.15	0.18	0.03
Mean Non-Zero Dose (mSv)	–	–	–	–	–	–	–	0.37	0.26	0.25	0.18
Non Uranium Mine Surface Personnel	69	17	10	6	6	4	0	0	0	0	0
Mean Dose (mSv)	0.04	0.01	0.01	–	–	–	–	–	–	–	–
Mean Non-Zero Dose (mSv)	0.13	0.05	0.04	–	–	–	–	–	–	–	–
Non Uranium Mine Underground Miner	1	1	1	1	1	1	1	1	0	0	0
Mean Dose (mSv)	–	–	–	–	–	–	–	–	–	–	–
Mean Non-Zero Dose (mSv)	–	–	–	–	–	–	–	–	–	–	–
Non Uranium Mine Visitors	1	1	1	2	1	1	1	1	1	1	1
Mean Dose (mSv)	–	–	–	–	–	–	–	–	–	–	–
Mean Non-Zero Dose (mSv)	–	–	–	–	–	–	–	–	–	–	–
Uranium Mine Electrician	27	22	18	11	7	19	33	172	190	59	34
Mean Dose (mSv)	0.05	0.19	0.26	0.29	–	0.17	0.12	0.25	0.14	0.44	0.37
Mean Non-Zero Dose (mSv)	0.12	0.22	0.35	0.36	–	0.22	0.25	0.27	0.21	0.48	0.70
Uranium Mine Mill Maintenance	521	604	450	491	428	432	486	913	907	516	308
Mean Dose (mSv)	0.71	0.61	0.80	0.80	0.79	0.64	0.71	0.48	0.49	0.58	0.62
Mean Non-Zero Dose (mSv)	0.90	0.68	0.85	0.86	0.84	0.71	0.77	0.52	0.56	0.62	0.67
Uranium Mine Mill Workers	330	347	341	340	298	322	308	321	326	312	252
Mean Dose (mSv)	1.04	0.93	1.03	1.05	1.07	1.05	1.15	1.18	1.33	1.41	1.39
Mean Non-Zero Dose (mSv)	1.17	1.02	1.10	1.11	1.14	1.17	1.29	1.25	1.43	1.45	1.44

Job Category*	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Uranium Mine Nurses	21	30	32	25	31	31	26	21	19	20	13
Mean Dose (mSv)	0.18	0.11	0.11	0.13	0.16	0.11	0.15	0.25	0.22	0.14	0.17
Mean Non-Zero Dose (mSv)	0.20	0.14	0.15	0.16	0.19	0.14	0.19	0.26	0.27	0.14	0.19
Uranium Mine Office Staff	514	670	686	807	889	942	986	811	822	733	582
Mean Dose (mSv)	0.20	0.18	0.18	0.21	0.23	0.19	0.21	0.24	0.23	0.20	0.14
Mean Non-Zero Dose (mSv)	0.27	0.22	0.22	0.26	0.27	0.22	0.25	0.29	0.28	0.24	0.16
Uranium Mine Support Workers	185	221	279	408	532	779	1108	524	510	425	374
Mean Dose (mSv)	1.86	1.32	1.29	1.04	0.91	0.65	0.65	0.89	1.11	0.83	0.71
Mean Non-Zero Dose (mSv)	2.04	1.44	1.40	1.17	1.02	0.72	0.73	1.03	1.17	0.90	0.79
Uranium Mine Surface Maintenance	849	952	750	609	809	805	907	691	846	672	360
Mean Dose (mSv)	0.23	0.27	0.27	0.32	0.23	0.26	0.24	0.26	0.32	0.31	0.21
Mean Non-Zero Dose (mSv)	0.29	0.33	0.31	0.39	0.29	0.32	0.33	0.35	0.39	0.38	0.27
Uranium Mine Surface Miner	215	171	154	81	90	107	67	33	22	23	16
Mean Dose (mSv)	0.29	0.47	0.49	0.42	0.19	0.18	0.22	0.40	0.40	0.20	0.06
Mean Non-Zero Dose (mSv)	0.43	0.66	0.64	0.75	0.43	0.37	0.50	0.57	0.44	0.21	0.07
Uranium Mine Surface Personnel	555	659	603	572	580	702	732	700	636	597	485
Mean Dose (mSv)	0.18	0.19	0.18	0.18	0.19	0.17	0.18	0.19	0.24	0.22	0.20
Mean Non-Zero Dose (mSv)	0.26	0.25	0.25	0.25	0.25	0.21	0.26	0.25	0.32	0.30	0.26
Uranium Mine Surface Support Workers	1706	2236	1870	1632	2041	2384	2423	2008	1881	1532	1136
Mean Dose (mSv)	0.15	0.22	0.19	0.25	0.24	0.22	0.24	0.21	0.27	0.21	0.20
Mean Non-Zero Dose (mSv)	0.24	0.29	0.26	0.33	0.30	0.27	0.32	0.28	0.34	0.27	0.24
Uranium Mine Underground Maintenance	224	291	296	407	438	506	776	424	532	386	357
Mean Dose (mSv)	1.02	0.90	0.95	0.85	0.92	0.65	0.58	0.67	0.72	0.67	0.51
Mean Non-Zero Dose (mSv)	1.23	1.00	1.06	0.94	0.98	0.73	0.67	0.76	0.79	0.74	0.57
Uranium Mine Underground Miner	430	451	508	622	648	677	687	553	517	434	285
Mean Dose (mSv)	2.87	2.32	2.92	2.30	2.17	1.76	1.50	1.93	2.17	1.46	1.24
Mean Non-Zero Dose (mSv)	3.05	2.50	3.13	2.45	2.27	1.91	1.67	2.12	2.24	1.50	1.29
Uranium Mine Underground Personnel	194	201	215	258	280	340	406	353	372	313	204
Mean Dose (mSv)	0.78	0.76	0.99	0.89	0.92	0.68	0.66	0.75	0.81	0.56	0.47
Mean Non-Zero Dose (mSv)	1.00	0.94	1.17	1.03	1.04	0.78	0.76	0.82	0.89	0.68	0.58
Uranium Mine Visitors	38	35	13	14	8	15	11	7	6	6	6
Mean Dose (mSv)	0.14	0.14	0.23	0.23	–	0.22	0.25	–	–	–	–
Mean Non-Zero Dose (mSv)	0.21	0.23	0.43	0.40	–	0.41	0.30	–	–	–	–

Job Category*	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Nuclear Total	*24382*	*26524*	*28106*	*28145*	*26501*	*25320*	*22214*	*22770*	*23771*	*26894*	*27885*
Mean Dose (mSv)	*1.05*	*1.10*	*0.98*	*0.95*	*1.09*	*1.04*	*0.79*	*0.70*	*0.72*	*0.73*	*0.90*
Mean Non-Zero Dose (mSv)	*2.77*	*2.97*	*2.67*	*2.70*	*2.95*	*2.86*	*2.47*	*2.26*	*2.41*	*2.32*	*2.77*
Reactor – Administration	3691	3256	2793	2987	2938	2927	2620	2513	2353	2390	2357
Mean Dose (mSv)	0.15	0.15	0.14	0.14	0.16	0.20	0.22	0.18	0.16	0.16	0.14
Mean Non-Zero Dose (mSv)	1.23	1.12	1.46	1.52	1.36	1.50	1.48	1.19	1.28	1.24	1.20
Reactor – Chemical And Radiation Control	925	1002	990	1059	1110	1152	1019	976	954	935	910
Mean Dose (mSv)	2.02	1.89	1.79	1.85	1.56	2.16	1.81	1.74	1.54	1.54	1.24
Mean Non-Zero Dose (mSv)	2.79	2.93	2.69	2.78	2.31	3.28	2.67	2.62	2.30	2.42	2.00
Reactor – Construction	1315	1527	1599	1968	1838	1299	1136	1090	1182	1539	1651
Mean Dose (mSv)	0.66	0.74	1.38	1.59	1.09	1.08	1.44	0.95	1.31	1.18	1.65
Mean Non-Zero Dose (mSv)	1.72	1.85	2.52	2.90	2.10	2.33	2.72	1.85	2.49	2.15	2.81
Reactor – Contractor	2511	2405	2687	2900	1900	2257	2595	2945	4151	6128	6848
Mean Dose (mSv)	1.62	0.92	1.30	1.61	1.50	1.70	1.15	0.58	1.05	0.67	1.80
Mean Non-Zero Dose (mSv)	3.90	2.58	2.97	3.64	3.15	3.46	2.85	1.89	2.90	2.00	4.14
Reactor – Control Technicians	464	622	595	616	570	534	478	440	390	442	431
Mean Dose (mSv)	0.48	0.62	0.59	0.81	0.74	0.72	0.90	0.57	0.83	0.52	0.68
Mean Non-Zero Dose (mSv)	1.05	1.24	1.08	1.49	1.36	1.42	1.85	1.16	1.66	1.04	1.39
Reactor – Electrical Maintenance	1390	1377	1303	1210	1195	1221	999	1017	932	998	970
Mean Dose (mSv)	0.84	1.07	0.93	0.90	0.90	0.85	0.85	0.83	0.76	0.85	0.56
Mean Non-Zero Dose (mSv)	1.61	2.17	1.99	2.00	1.94	1.67	1.90	1.70	1.63	1.76	1.39
Reactor – Fuel Handling	98	87	86	67	69	80	81	98	60	73	86
Mean Dose (mSv)	1.38	2.28	1.06	1.24	0.68	0.69	0.96	1.77	1.26	2.83	2.39
Mean Non-Zero Dose (mSv)	2.01	3.10	1.50	2.19	1.38	1.02	1.34	2.63	1.85	4.04	3.31
Reactor – General Maintenance	1836	3045	3195	2763	2651	2550	1492	1721	1474	1953	1796
Mean Dose (mSv)	1.00	2.12	1.40	0.88	1.17	0.88	0.88	0.76	0.62	0.73	0.52
Mean Non-Zero Dose (mSv)	2.37	4.03	2.64	1.93	2.48	1.74	2.52	1.96	2.04	1.92	1.64
Reactor – Health Physics	121	134	160	148	144	221	243	235	212	234	229
Mean Dose (mSv)	0.22	0.77	0.80	0.18	0.26	0.17	0.17	0.25	0.18	0.70	0.29
Mean Non-Zero Dose (mSv)	0.56	1.64	1.81	0.60	0.66	0.37	0.42	0.54	0.71	1.77	0.79
Reactor – Industrial Radiographer	67	86	101	107	108	107	123	120	111	115	119
Mean Dose (mSv)	1.85	1.79	1.52	1.48	1.38	1.92	1.11	0.78	0.84	1.31	0.81
Mean Non-Zero Dose (mSv)	2.38	2.52	2.33	2.17	2.27	2.77	2.11	1.19	1.58	1.93	1.36
Reactor – Mechanical Maintenance	1673	1797	1717	1654	1791	1646	1491	1458	1447	1491	1511
Mean Dose (mSv)	2.08	2.08	1.74	1.95	2.20	2.58	1.95	2.27	1.90	2.14	1.71
Mean Non-Zero Dose (mSv)	3.06	3.20	2.82	3.34	3.45	4.04	2.98	3.42	2.87	3.22	2.69

Job Category*	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Reactor – Operations	2512	2583	2556	2604	2462	2504	2384	2334	2368	2429	2534
Mean Dose (mSv)	1.13	1.20	1.07	1.01	0.94	1.00	0.96	1.03	0.91	0.99	0.83
Mean Non-Zero Dose (mSv)	2.02	2.18	2.03	1.97	1.78	1.83	1.84	1.99	1.75	1.88	1.65
Reactor – Scientific/ Professional	3654	4543	4975	5052	4911	4749	4250	4060	3994	4187	4378
Mean Dose (mSv)	0.19	0.19	0.20	0.16	0.14	0.13	0.11	0.08	0.06	0.07	0.05
Mean Non-Zero Dose (mSv)	1.04	1.15	1.19	1.05	1.00	0.92	0.99	0.68	0.64	0.72	0.53
Reactor – Summer Student	162	191	226	191	173	139	161	221	244	268	359
Mean Dose (mSv)	0.10	0.18	0.08	0.12	0.02	0.04	0.07	0.02	0.06	0.03	0.02
Mean Non-Zero Dose (mSv)	0.48	0.76	0.41	0.56	0.21	0.27	0.89	0.19	0.47	0.34	0.28
Reactor – Training	112	117	120	128	113	133	135	129	133	129	133
Mean Dose (mSv)	0.14	0.28	0.19	0.12	0.08	0.11	0.17	0.16	0.08	0.15	0.06
Mean Non-Zero Dose (mSv)	0.62	1.42	1.17	1.34	0.95	1.37	1.25	1.05	0.53	0.85	0.49
Reactor – Visitor	6550	7119	7442	7608	7260	6632	4729	5058	5586	6112	5772
Mean Dose (mSv)	1.16	0.98	0.87	0.74	1.37	0.99	0.42	0.46	0.38	0.49	0.29
Mean Non-Zero Dose (mSv)	3.65	3.68	3.40	3.01	4.43	4.26	3.32	4.18	3.52	3.92	2.42

Job Category*	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Shared Total	*22590*	*21713*	*21466*	*21798*	*22313*	*22317*	*21276*	*20764*	*20106*	*20658*	*20308*
Mean Dose (mSv)	*0.05*	*0.05*	*0.04*	*0.05*	*0.06*	*0.04*	*0.04*	*0.04*	*0.04*	*0.04*	*0.04*
Mean Non-Zero Dose (mSv)	*0.53*	*0.55*	*0.44*	*0.53*	*0.56*	*0.44*	*0.38*	*0.40*	*0.35*	*0.32*	*0.40*
Administrator	715	675	630	637	658	661	671	678	652	764	693
Mean Dose (mSv)	0.10	0.11	0.09	0.08	0.06	0.06	0.05	0.04	0.04	0.03	0.03
Mean Non-Zero Dose (mSv)	0.36	0.44	0.37	0.40	0.29	0.30	0.28	0.26	0.24	0.16	0.22
Inspector	73	77	86	103	120	129	178	263	304	276	268
Mean Dose (mSv)	0.19	0.05	0.13	0.24	0.47	0.13	0.10	0.11	0.08	0.08	0.10
Mean Non-Zero Dose (mSv)	2.37	0.51	0.79	0.93	1.57	0.75	0.42	0.87	0.70	0.83	1.03
Office Staff	4097	3983	3699	3731	3621	3480	3503	3372	3374	3517	3583
Mean Dose (mSv)	0.04	0.05	0.03	0.03	0.08	0.04	0.03	0.03	0.02	0.03	0.02
Mean Non-Zero Dose (mSv)	0.38	0.43	0.32	0.31	0.77	0.35	0.28	0.26	0.23	0.22	0.21
Other (Administration)	473	473	490	530	583	550	549	552	608	617	567
Mean Dose (mSv)	0.23	0.31	0.24	0.25	0.16	0.17	0.13	0.13	0.11	0.15	0.15
Mean Non-Zero Dose (mSv)	0.51	0.66	0.50	0.48	0.34	0.31	0.24	0.24	0.21	0.23	0.27
Other (Miscellaneous)	653	574	575	574	634	805	700	651	528	576	561
Mean Dose (mSv)	0.13	0.18	0.13	0.15	0.17	0.16	0.15	0.12	0.14	0.12	0.13
Mean Non-Zero Dose (mSv)	0.66	0.72	0.51	0.65	0.69	0.55	0.49	0.41	0.43	0.38	0.48
Safety Officer	394	270	241	256	517	610	614	628	583	559	502
Mean Dose (mSv)	0.10	0.15	0.12	0.11	0.08	0.06	0.04	0.05	0.06	0.07	0.07
Mean Non-Zero Dose (mSv)	0.48	0.55	0.49	0.44	0.51	0.37	0.38	0.41	0.39	0.43	0.46
Student	15881	15336	15230	15509	15716	15381	14231	14064	13799	14196	13982
Mean Dose (mSv)	0.03	0.04	0.03	0.04	0.04	0.03	0.03	0.04	0.03	0.03	0.04
Mean Non-Zero Dose (mSv)	0.55	0.61	0.48	0.61	0.57	0.54	0.48	0.57	0.49	0.41	0.52
Unknown	32	9	14	24	73	10	2	5	2	2	0
Mean Dose (mSv)	2.75	–	–	0.09	0.08	0.02	–	–	–	–	–
Mean Non-Zero Dose (mSv)	3.14	–	–	0.20	0.22	0.11	–	–	–	–	–
Visitor	329	374	568	560	489	760	909	615	330	276	234
Mean Dose (mSv)	0.05	0.03	0.07	0.16	0.04	0.04	0.05	0.06	0.10	0.11	0.12
Mean Non-Zero Dose (mSv)	0.36	0.17	0.34	0.68	0.19	0.17	0.17	0.16	0.18	0.19	0.20

* Individuals working in 2 (or more) different job categories are counted in each job category.

Figure C.1: Eleven-year trend; mean annual effective doses by job sector for all of Canada

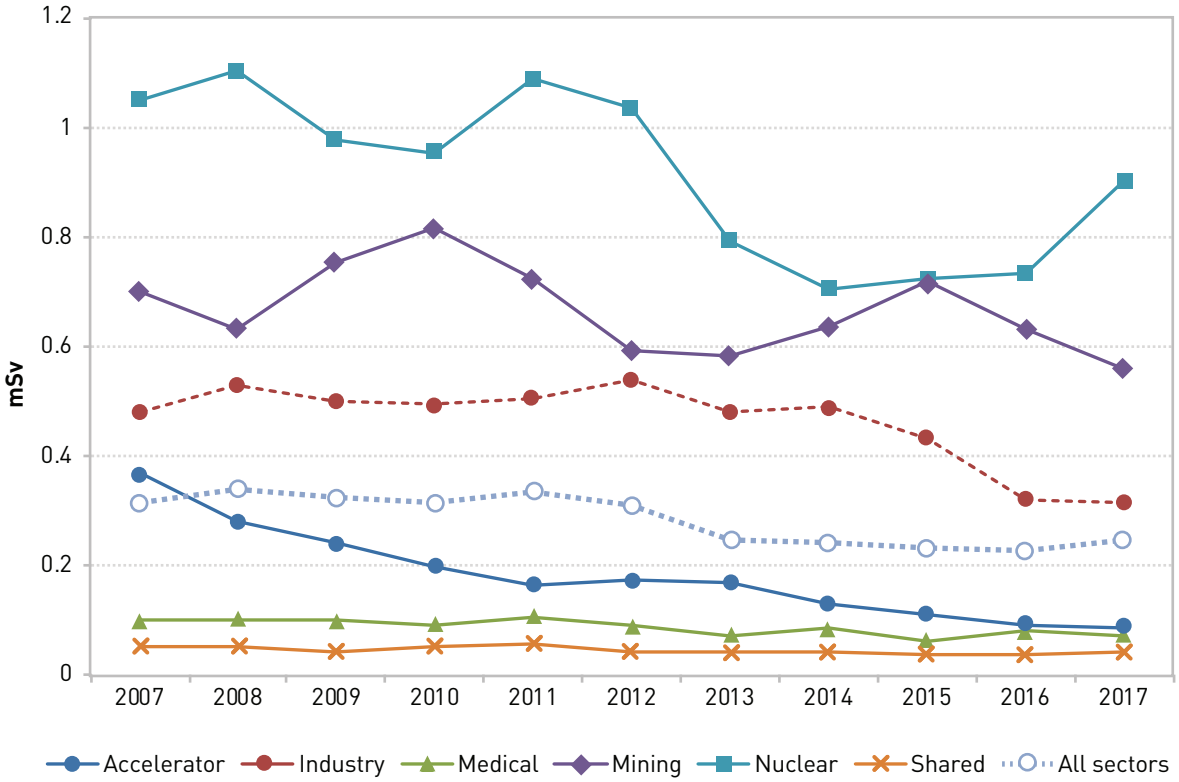
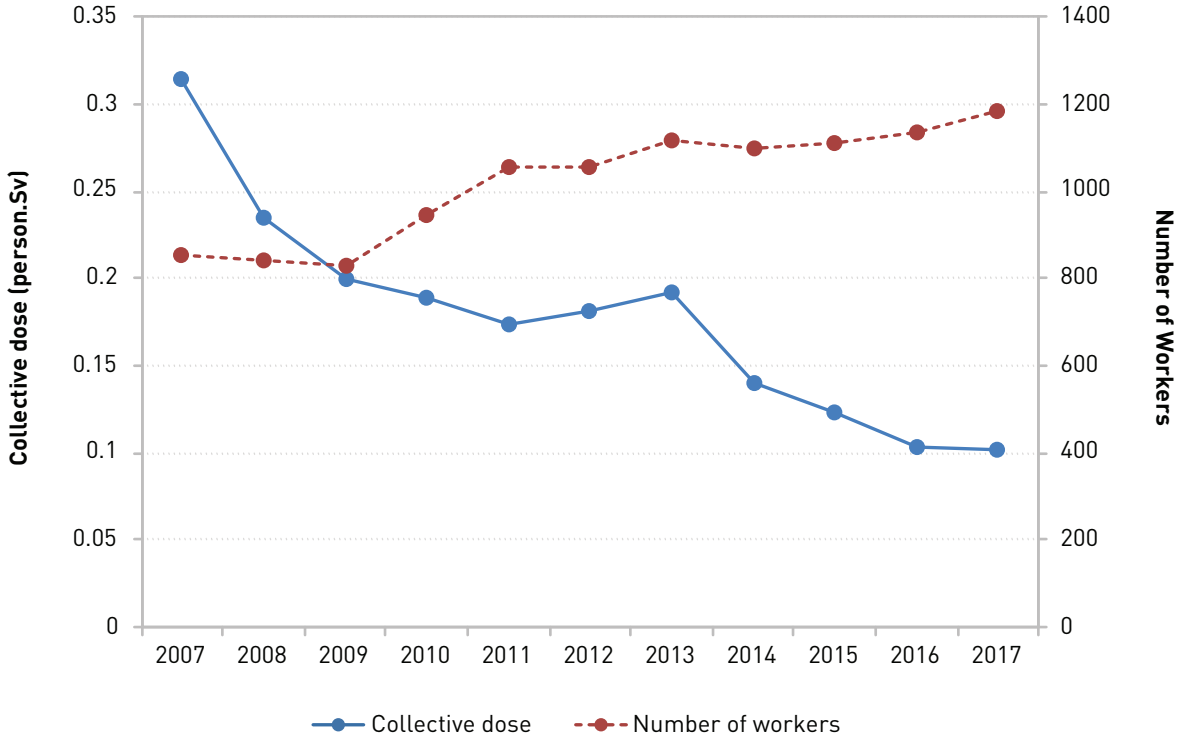
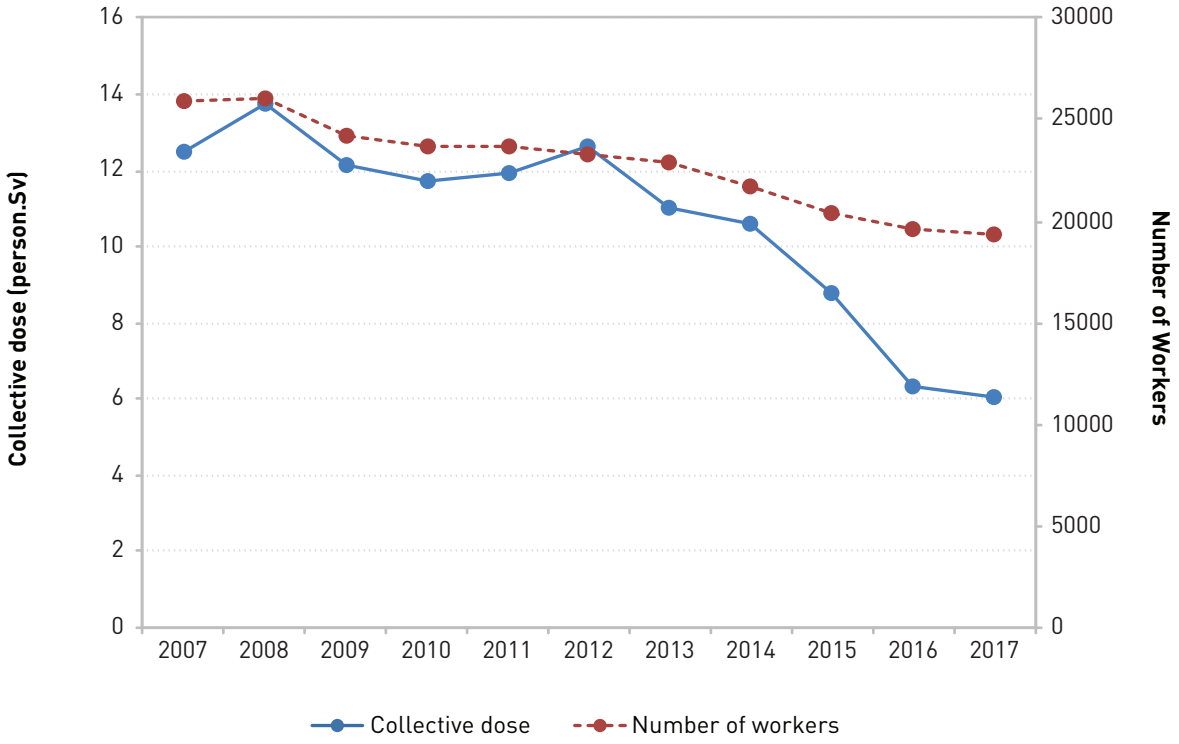


Figure C.2: Eleven-year trend of number of workers and collective effective doses by job sector for all of Canada

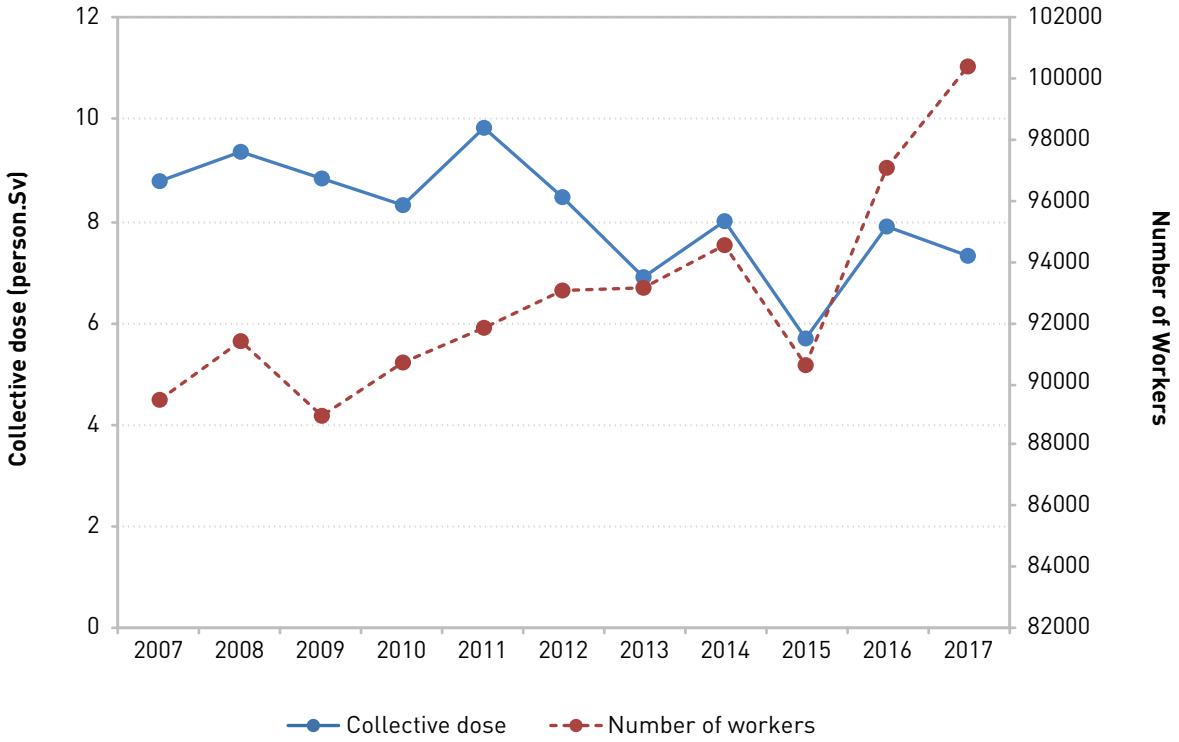
a) Accelerator



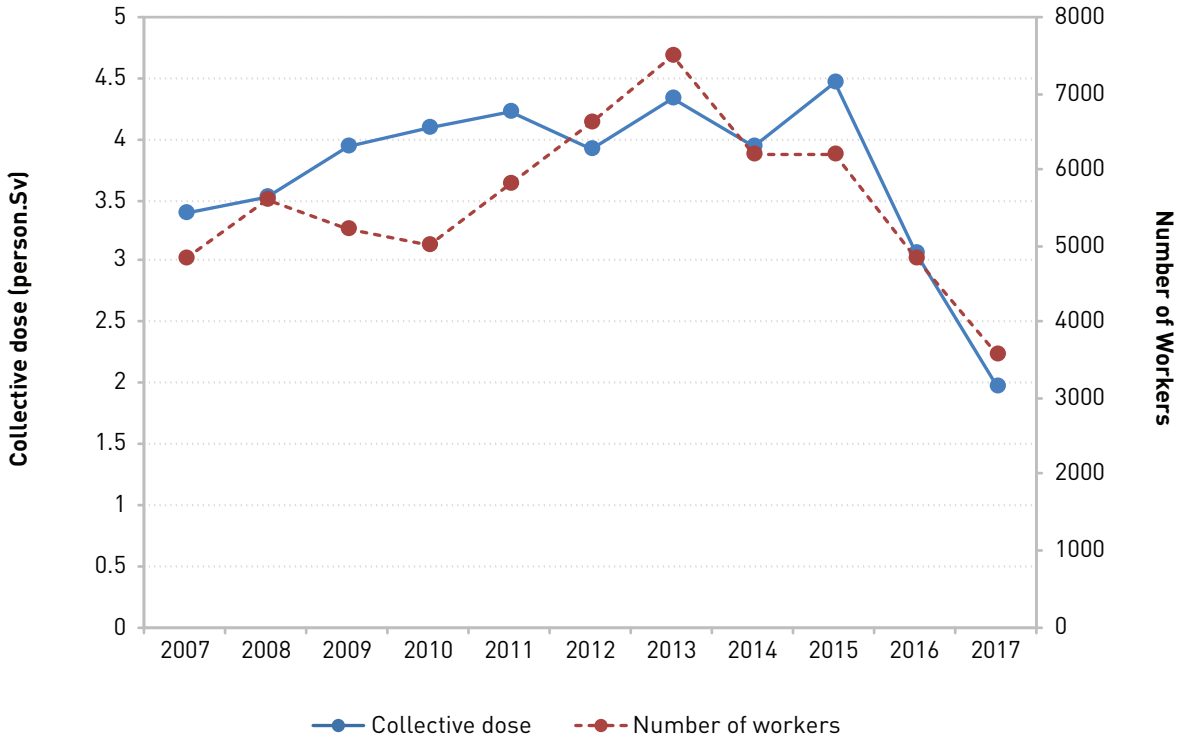
b) Industry



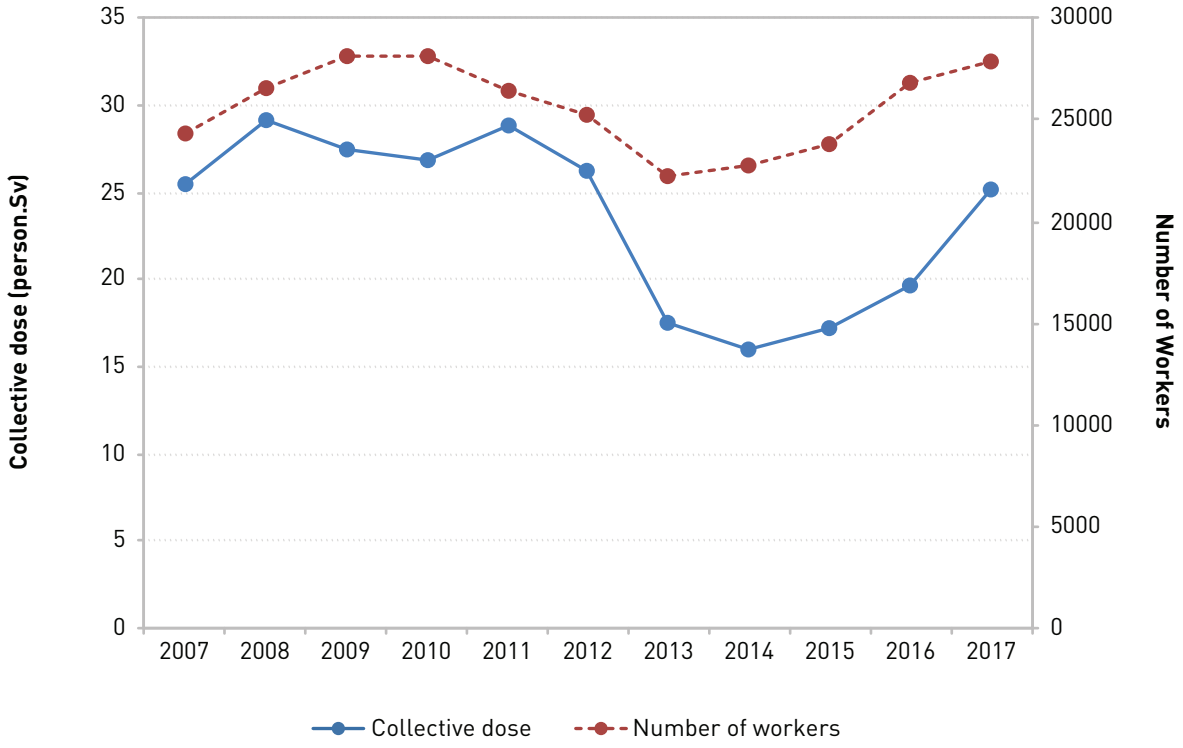
c) Medical



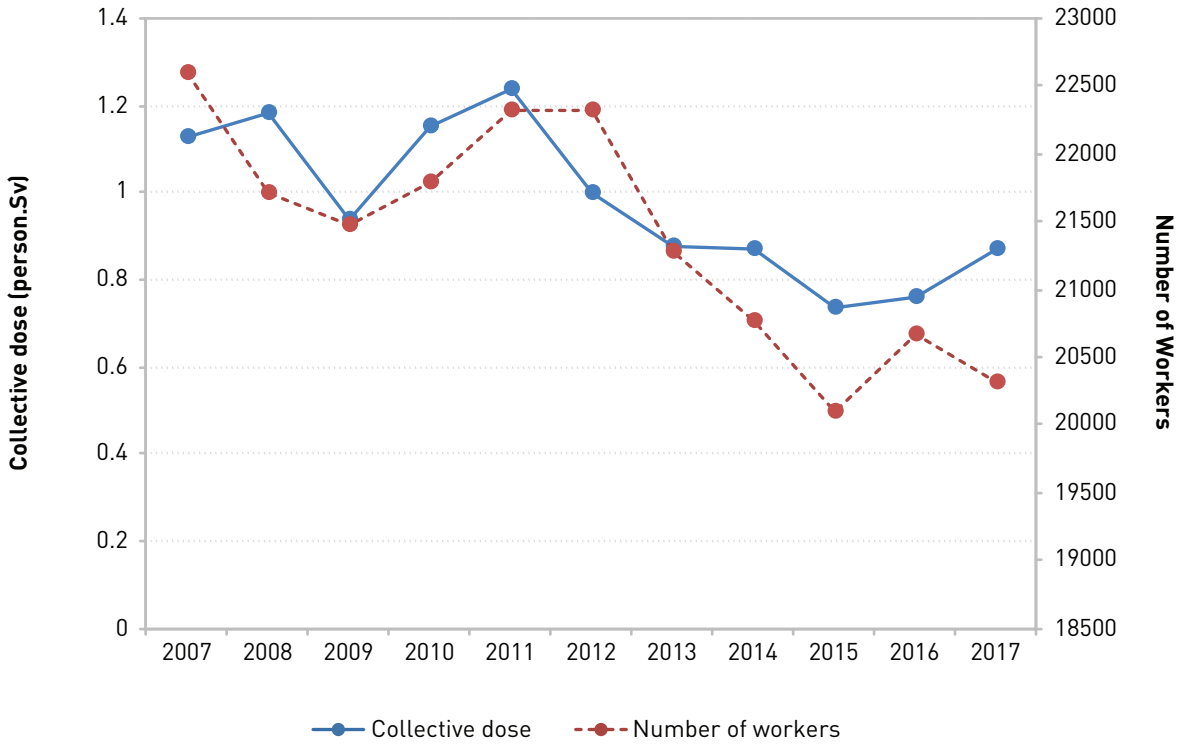
d) Mining



e) Nuclear



f) Shared



g) Total (all sectors combined)