

# PNL & HEHF (Hanford)

## HFSRCW01 Data File Set

### Description

The HFSRCW01 working data file set consists of seven working files used as data sources in the process of creating the 1992 Hanford Mortality Study data base.

Job histories, external radiation data, internal deposition data, mortality information, and the 1979 master data file are provided by the Health Risk Assessment Department (HRAD) of Pacific Northwest Laboratories (PNL) for individuals employed at Hanford. The master data file was generated by HRAD in 1979. The contents of the other working files are supplied as received from either the Operations Analysis Department of the Hanford Environmental Health Foundation (HEHF), or the Health Physics Department (HPD) of PNL. These seven files are defined as source files in PNL Technical Report No. PNL-8449, Description of the Process Used to Create the 1992 Hanford Mortality Study Data Base (E.S. Gilbert, et al., December 1992). Each one was a data source used by HRAD to generate the working files in the HFW89W01 data file set that were used to create the 1992 Hanford Mortality Study data base.

Occupational data for Hanford employees and mortality information for former employees are collected, maintained, and periodically updated by HEHF. External radiation exposure data, estimated from personal dosimeters, are routinely collected and maintained by HPD. Exposure data from internal monitoring are also routinely collected and evaluated by HPD for employees who worked in locations where there was a potential for intake of radioactive material (transuranics).

OHH88\_OP is an unedited working file of 1944-1988 job histories for all individuals, other than those employed only as construction workers, initially employed at Hanford from 1944-1983 by U.S. Department of Energy (DOE) contractors. These individuals are referred to as operations workers. This file was generated from the occupational health history file received

from HEHF in 1988. Each individual on the occupational health history file had one personnel identification record and usually several work history records. A work history record was created each time certain job changes occurred. OHH88\_OP has a total of 484,527 records for the 52,522 operations workers that have job histories.

OHH88\_CO is an unedited working file of 1944-1988 job histories for all individuals initially employed at Hanford from 1944-1983, only as construction, DOE, or site service workers. This file was generated from the occupational health history file received from HEHF in 1988. OHH\_CO has a total of 8,651 records for the 2,285 non-operations workers that have job histories.

ORE\_44 is an unedited working file of external dosimetry data for workers initially employed at Hanford in the years 1944-1982. This file of occupational radiation exposure data, which includes off-site occupational exposures, was received from HPD in 1990. ORE\_44 has a total of 333,020 records for the 33,092 workers that were monitored.

ORE\_83 is an unedited working file of external dosimetry data for workers initially employed at Hanford in the years 1983-1989. This file of occupational radiation exposure data, which includes off-site occupational exposures, was received from HPD in 1990. The type of dosimetry information provided differs from the information available for the years 1944-1982. ORE\_83 has a total of 151,022 records for the 16,821 workers that were monitored.

INDEP is an unedited working file of internal deposition data for Hanford workers with confirmed internal depositions of various radionuclides, including plutonium, in the years 1944-1989. This file was received from HPD in 1991. INDEP has a total of 624 records for 560 workers.

# PNL & HEHF (Hanford)

## HFSRCW01 Data File Set

HMO91 is an unedited working file of mortality data for former Hanford workers identified as dying in the years 1944-1991. This file was received from HEHF in 1991. HMO91 has one record for each of the 10,922 deceased workers.

MST79 is the master data file consisting of merged information about job histories, external dosimetry, internal depositions, and mortality data for operations workers initially employed at Hanford in the years 1944-1978. A detailed account of the process used to create this file is described in Appendix A of the referenced technical report. MST79 has one record for each of the 44,101 operations workers that have job histories. ❖

Number of Working Files: 7		
File Name	Number of Variables	Type of Data
OHH88_OP	10	job histories
OHH88_CO	10	job histories
ORE_44	13	external dosimetry data
ORE_83	11	external dosimetry data
INDEP	16	internal deposition data
HMO91	19	mortality data 1944-1991
MST79	61	job histories, external dosimetry, internal depositions and mortality data

### Variables for Working File OHH88\_OP

29 MB

Name	Description
<b>id</b>	identification number
<b>birth</b>	birth date
<b>sex</b>	sex
<b>race</b>	race
<b>jobstat</b>	job status
<b>jobtitle</b>	job title
<b>jobbegan</b>	date job began
<b>jobend</b>	date job ended
<b>jobcode</b>	Bureau of Census job code
<b>studypop</b>	study population

### Variables for Working File OHH88\_CO

519 KB

Name	Description
<b>id</b>	identification number
<b>birth</b>	birth date
<b>sex</b>	sex
<b>race</b>	race
<b>jobstat</b>	job status
<b>jobtitle</b>	job title
<b>jobbegan</b>	date job began
<b>jobend</b>	date job ended
<b>jobcode</b>	Bureau of Census job code
<b>studypop</b>	study population

## Variables for Working File

## ORE\_44

23 MB

Name	Description
<b>id</b>	identification number
<b>typecont</b>	type of contractor
<b>dosbegan</b>	date dose period began
<b>dosend</b>	date dose period ended
<b>dtyptrit</b>	dosimeter type or tritium indicator
<b>nonpenet</b>	non-penetrating radiation dose, millirems
<b>penetrat</b>	penetrating radiation dose, millirems
<b>fastneut</b>	fast neutron radiation dose, millirems
<b>slowneut</b>	slow neutron radiation dose, millirems
<b>extremit</b>	extremity radiation dose, millirems
<b>x_ray</b>	x-ray radiation dose, millirems
<b>offsite</b>	off-site indicator
<b>studypop</b>	study population indicator

## Variables for Working File

## ORE\_83

9 MB

Name	Description
<b>id</b>	identification number
<b>typecont</b>	type of contractor
<b>dosbegan</b>	date dose period began
<b>dosend</b>	date dose period ended
<b>dosimtyp</b>	dosimeter type
<b>shallow</b>	shallow radiation dose, millirems
<b>deep</b>	deep radiation dose, millirems
<b>neutron</b>	neutron radiation dose, millirems
<b>extremit</b>	extremity radiation dose, millirems
<b>offsite</b>	off-site indicator
<b>studypop</b>	study population indicator

## Variables for Working File

## INDEP

61 KB

Name	Description
<b>id</b>	identification number
<b>terminat</b>	date of Hanford termination
<b>offintak</b>	off-site intake indicator
<b>depvalue</b>	magnitude of deposition, % MPBB
<b>pu_value</b>	magnitude of plutonium deposition, % MPBB
<b>intake</b>	intake flag
<b>isotype</b>	isotope type
<b>pu238ind</b>	plutonium-238 indicator
<b>intkinfo</b>	mode and date of first intake
<b>stats_89</b>	status as of 1/6/89
<b>spcnotes</b>	special notes
<b>highlung</b>	highest annual lung dose
<b>lung_87</b>	lung dose in 1987
<b>lung_88</b>	lung dose in 1988
<b>lung_89</b>	lung dose in 1989
<b>highlngyr</b>	date of highest annual lung dose

## Variables for Working File

## HMO91

699 KB

Name	Description
<b>id</b>	identification number
<b>birth</b>	birth date
<b>statedth</b>	state of death
<b>death</b>	date of death
<b>sex</b>	sex
<b>worktype</b>	type of work
<b>dcstatus</b>	death certificate status
<b>underl_9</b>	underlying cause of death (ICD 9th revision)
<b>underl_8</b>	underlying cause of death (ICD 8th revision)
<b>ascau1_9</b>	first associated cancer cause of death (ICD 9th revision)
<b>ascau1_8</b>	first associated cancer cause of death (ICD 8th revision)
<b>ascau2_9</b>	second associated cancer cause of death (ICD 9th revision)
<b>ascau2_8</b>	second associated cancer cause of death (ICD 8th revision)
<b>ascau3_9</b>	third associated cancer cause of death (ICD 9th revision)
<b>ascau3_8</b>	third associated cancer cause of death (ICD 8th revision)
<b>ascau4_9</b>	fourth associated cancer cause of death (ICD 9th revision)

- ascau4\_8** fourth associated cancer cause of death (ICD 8th revision)
- ascau5\_9** fifth associated cancer cause of death (ICD 9th revision)
- ascau5\_8** fifth associated cancer cause of death (ICD 8th revision)

### Variables for Working File MST79

12 MB

Name	Description
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<b>id</b>	identification number
<b>birth</b>	birth date (century, year)
<b>sex</b>	sex
<b>race</b>	race
<b>hire</b>	initial employment date (year, month)
<b>final</b>	last employment date (year, month)
<b>finalcod</b>	last employment date code
<b>genoccod</b>	general occupation code
<b>speccod1</b>	special occupation code #1
<b>speccod2</b>	special occupation code #2
<b>tot_1978</b>	total penetrating dose through 1978
<b>pen_1944</b>	penetrating dose by year, 1944-1978
<b>pen_1978</b>	
<b>nuondose</b>	number of on-site dose records
<b>fondosyr</b>	first on-site dose year
<b>fondosfl</b>	first on-site dose flag
<b>sondosyr</b>	second on-site dose year
<b>londosyr</b>	last on-site dose year
<b>londosfl</b>	last on-site dose flag
<b>totofdos</b>	total off-site penetrating dose
<b>fofdosyr</b>	first off-site dose year
<b>fofdosam</b>	first off-site dose amount
<b>nuofdose</b>	number of off-site dose records

<b>totnedos</b>	total neutron dose
<b>numnedos</b>	number of positive neutron records
<b>fnedosyr</b>	first neutron dose year
<b>lnedosyr</b>	last neutron dose year
<b>payflag</b>	payroll flag
<b>birthdc</b>	birth date from death certificate (century, year)
<b>pudepyr</b>	plutonium internal deposition year
<b>pudepam</b>	plutonium internal deposition amount
<b>deviso1</b>	internal deposition isotope #1
<b>deviso2</b>	internal deposition isotope #2
<b>death</b>	death year
<b>udthcd8</b>	underlying death cause (ICD 8th revision)
<b>dthstate</b>	state of death

# PNL & HEHF (Hanford)

## HFW89W01 Data File Set

### Description

The HFW89W01 data file set consists of seven working files created during the development of the 1992 Hanford Mortality Study (HMS) data base and one related mortality working file prepared in 1993.

Demographic data, job histories, external radiation dosimetry, internal deposition data, and vital status are provided by the Health Risk Assessment (HRAD) of Pacific Northwest Laboratories (PNL) for individuals employed at Hanford. Six of the files were generated by HRAD, during the development of the 1992 HMS data base, using the seven source files in the HFSRCW01 data file set. The seventh file contains mortality data provided by the Operations Analysis Department of the Hanford Environmental Health Foundation (HEHF) and edited by HRAD.

JOB89 is an edited working file of job histories, including demographic data, for the years 1944-1988. Occupational health history data for operations workers were received from HEHF in 1988. Social class was assigned by HRAD using Bureau of Census job codes modified to correct inconsistencies between recorded job descriptions and assigned codes. These modifications did not correct all inconsistencies, but they did correct those that occurred frequently. They also corrected those that were important for use in assigning social class and for designating special categories of nuclear workers. Sequential entries for which the social class codes did not change and for which the worker did not terminate employment were combined. Sequential entries were also combined if the time interval between the termination code and the next code was less than 1 month. JOB89 has a total of 94,176 records for the 44,408 workers that have job histories.

DOS89 is an edited working file of external dosimetry data, including demographic data, for the years 1944-1989.

Occupational radiation exposure data for operations workers and construction workers, including off-site exposures, were received from the Health Physics Department (HPD) of PNL in 1990. Data for construction workers were excluded by HRAD. However, doses received by operations workers while performing construction work were retained. For each worker, whole-body dose was calculated for each year using on-site dose estimates. Comparisons were made with the master data file created in 1979 and the occupational health history data received from HEHF in 1988. Discrepancies were noted, and they were resolved by HPD. DOS89 has a total of 429,794 records for the 45,495 workers that were monitored.

INT89 is an edited working file of internal deposition data for the years 1944-1989. Data on workers with confirmed internal depositions of plutonium or other radionuclides were received from HPD in 1991. These data were edited by HRAD for missing information and for workers with multiple entries. Additions and corrections were determined by HPD. Comparisons were made with the master data file created in 1979 and the key file containing identifying information for workers in the study population. Discrepancies were noted, and they were resolved by HPD. INT89 has one record for each of the 560 workers with depositions.

ADD89 consists of three edited working files: ADD89\_1, ADD89\_2 and ADD89\_3. Using the IARC protocol, these files were constructed in the same manner as IARC89\_1, IARC89\_2, and IARC89\_3 (see HFI89A01 analytic data file set description). The

# PNL & HEHF (Hanford)

## HFW89W01 Data File Set

125 workers in these files are judged to be members of the study population, but they were not included in analyses of this population because there are questions about the adequacy of their mortality ascertainment. These questions involve primarily multiple social security numbers for the same worker or a worker's absence on the 1988 Occupational Health History files that serve as the basis for mortality follow-up. The study population is defined as individuals employed as operations workers prior to 1979, excluding the workers on ADD89 (HFI89A01 includes only members of this study population).

MORT93, the seventh working file, consists of coded and edited mortality data for former Hanford operations and construction workers identified as dying in the years 1944-1993. This file was prepared by HEHF in 1993 and requested by HRAD in January

1995. Data discrepancies were identified by HRAD and resolved by HEHF. MORT93 has one record for each of the 14,236 deceased workers (666 additional workers have been identified as dying in these years; however, cause-of-death data are not currently available for these individuals). ❖

### Additional References

Buschbom, R. L., and E. S. Gilbert. 1993. *Summary of recorded external radiation doses for Hanford workers 1944-1989*. PNL Technical Report No. PNL-8909.

Fix, J. J., E. S. Gilbert, and W. V. Baumgartner. 1994. *An assessment of bias and uncertainty in recorded dose from external sources of radiation for workers at the Hanford Site*. PNL Technical Report No. PNL-10066.

Number of Working Files: 7		
File Name	Number of Variables	Type of Data
JOB89	10	job histories
DOS89	14	external dosimetry data
INT89	7	internal dosimetry
ADD89_1	18	demographic work; history; vital status; internal deposition data
ADD89_2	11	external exposure
ADD89_3	30	internal exposure; off-site exposure; cause of death
MORT93	17	mortality data

**Variables for Working File  
JOB89**

4 MB

Name	Description
<b>id</b>	identification number
<b>birth</b>	birth date
<b>sex</b>	sex
<b>race</b>	race
<b>century</b>	century of birth
<b>socentry</b>	date of social class entry
<b>jobcode</b>	bureau of census job code
<b>socclass</b>	social class
<b>jobexit</b>	date of social class exit
<b>status</b>	status of worker at social class exit

**Variables for Working File  
DOS89**

43 MB

Name	Description
<b>id</b>	identification number
<b>sex</b>	sex
<b>birth</b>	birth date
<b>yearext</b>	year of external dosimetry
<b>typework</b>	type of work performed during year
<b>gam_xray</b>	penetrating radiation dose
<b>neutron</b>	neutron radiation dose
<b>tritium</b>	tritium radiation dose
<b>totalpen</b>	total whole-body penetrating radiation dose
<b>xray</b>	x-ray radiation dose
<b>extrem</b>	extremity radiation dose
<b>nonpen</b>	non-penetrating radiation dose
<b>fastneut</b>	fast neutron radiation dose
<b>slowneut</b>	slow neutron radiation dose

**Variables for Working File  
INT89**

19 KB

Name	Description
<b>id</b>	identification number
<b>yfpudep</b>	year of first plutonium deposition
<b>pudep</b>	amount of plutonium deposition
<b>typedep</b>	type of deposition
<b>yfodep</b>	year of first other type of deposition
<b>otherdep</b>	amount of deposition other than plutonium
<b>srflag</b>	strontium flag

**Variables for Working File  
ADD89\_1**

8 KB

Name	Description
<b>id</b>	identification number
<b>sex</b>	sex
<b>birth</b>	birth date
<b>endstudy</b>	study end date
<b>vital</b>	date of last vital status
<b>hire</b>	date of initial employment
<b>followup</b>	date of follow-up start
<b>final</b>	date of final employment
<b>yfpudep</b>	date of first plutonium deposition
<b>yfpumon</b>	date of first plutonium monitoring
<b>yfudep</b>	date of first uranium deposition
<b>yfumon</b>	date of first uranium monitoring
<b>typedep</b>	type of internal deposition other than plutonium or uranium
<b>yfodep</b>	date of first type of deposition other than plutonium or uranium
<b>lgensoc</b>	longest general social class
<b>icdcause</b>	underlying cause of death
<b>icdrevis</b>	ICD revision number
<b>numext</b>	number of external dosimetry readings

HFW89W01

Variables for Working File ADD89_2	
Name	Description

29 KB

<b>id</b>	identification number
<b>sex</b>	sex
<b>birth</b>	birth date
<b>yearext</b>	date of external dosimetry
<b>facility</b>	facility
<b>gam_xray</b>	penetrating radiation dose, mSv
<b>neutron</b>	neutron radiation dose, mSv
<b>tritium</b>	tritium radiation dose, mSv
<b>totalpen</b>	total whole-body penetrating radiation dose, mSv
<b>xray</b>	x-ray dose, mSv
<b>extrem</b>	extremity dose, mSv

Variables for Working File ADD89_3	
Name	Description

17 KB

<b>id</b>	identification number
<b>sex</b>	sex
<b>birth</b>	birth date
<b>race</b>	race
<b>pudep</b>	amount of plutonium deposition, % MPBB
<b>otherdep</b>	amount of deposition other than plutonium, % MPBB
<b>stronind</b>	strontium indicator
<b>statedth</b>	state of death
<b>ovlapind</b>	study overlap indicator
<b>ascause1</b>	first associated cancer cause of death
<b>ascause2</b>	second associated cancer cause of death
<b>ascause3</b>	third associated cancer cause of death
<b>ascause4</b>	fourth associated cancer cause of death
<b>ascause5</b>	fifth associated cancer cause of death
<b>lastsoc</b>	last social class
<b>lgensoc</b>	longest general social class
<b>longsoc</b>	longest social class
<b>lngthemp</b>	length of employment
<b>yoffdos1</b>	date of first off-site dose
<b>offdos1</b>	amount of first off-site dose, mSv
<b>yoffdos2</b>	date of second off-site dose
<b>offdos2</b>	amount of second off-site dose, mSv

<b>yoffdos3</b>	date of third off-site dose
<b>offdos3</b>	amount of third off-site dose, mSv
<b>yoffdos4</b>	date of fourth off-site dose
<b>offdos4</b>	amount of fourth off-site dose, mSv
<b>yoffdos5</b>	date of fifth off-site dose
<b>offdos5</b>	amount of fifth off-site dose, mSv
<b>yoffdos6</b>	date of sixth off-site dose
<b>offdos6</b>	amount of sixth off-site dose, mSv

Variables for Working File MORT93	
Name	Description

5 MB

<b>id</b>	identification number
<b>sex</b>	sex
<b>race</b>	race
<b>birthyr</b>	year of birth
<b>dthplace</b>	place of death (geographic location)
<b>deathyr</b>	year of death
<b>dthcauhc</b>	causes of death (hand coded)
<b>injlchc</b>	place of injury (hand coded)
<b>rejectsg</b>	reject flag (system generated)
<b>dcsource</b>	source(s) of death certificate
<b>entrydte</b>	date of entry
<b>chngetme</b>	date of change
<b>chngetme</b>	time of change
<b>worktype</b>	type of worker
<b>injlcs</b>	place of injury (system generated)
<b>dthcausg</b>	causes of death (system generated)
<b>trancasg</b>	translated causes of death (system generated)

# LANL (Los Alamos/Zia)

## LAMULW02 Data File Set

### Description

The LAMULW02 data file set consists of nine working files prepared for epidemiologic studies of workers at the Los Alamos National Laboratory (LANL) and at the Zia Company (Zia), the principal subcontractor to LANL from 1946-1986.

The LAMULW02 data file set consists of nine related working files that were generated by the Epidemiology Section at the LANL for mortality studies of workers employed at LANL and/or Zia. Data were obtained in various formats and media from different LANL and Zia departments and other agencies. Personnel data (through December 31, 1978) were abstracted from copies of four personnel record sources. Supplemental data were obtained from LANL's security badge book, personnel security questionnaires, and personnel records from other employers under study by LANL. Death information was abstracted from death certificates obtained from various states. Computerized external ionizing radiation data, plutonium bioassay results, and estimated plutonium body burdens were obtained from the LANL Health Physics Department, which is responsible for radiation monitoring for all subcontractor personnel at LANL.

The nine files in the LAMULW02 data file set are segregated by type of data: demographic, external exposure, plutonium bioassay results, and plutonium depositions. Data pertaining to an individual that appear in one or more files may be linked by the individual identification number assigned to each worker.

The first working file (LAPFILE) contains demographic information for LANL employees, including birth and death dates, race, sex, work histories, coded cause of death, and other vital status information. The data in this file pertain to 23,241 workers hired between 1943 and 1977, as well as a few later hires. The file includes 6,803 females, 16,317 males and 120

workers with unknown sex. Race was determined for 68% of the workers. Vital status was last ascertained in 1992 through the National Death Index (NDI), with information available from 1979 through 1990. Most death information prior to 1984 was obtained through the Social Security Administration (SSA). There are 4,170 deaths identified in this file. ICDA codes are missing for 15 records.

The second working file (ZAPFILE) contains demographic information for Zia employees, including birth and death dates, race, sex, limited work histories, coded cause of death, and other vital status information. Data in this file pertain to 15,311 workers hired during the years 1946-1978, as well as a few later hires. The file includes 469 females, 11,215 males and 3,627 workers with unknown sex. Race was ascertained for 75% of the workers. Only the information for the radiation-monitored subset of this cohort has been edited. Vital status was last ascertained in 1992 through the NDI, with information available from 1979 through 1990. Most death information prior to 1984 was obtained through the SSA. There are 5,216 deaths identified in this file. ICDA codes are missing for two records. Most fields have been edited only for the radiation-monitored subset of the Zia cohort.

The third file (LAEFIL) contains annual external radiation exposure data from 1944 through 1979 measured using film dosimeters. Data consist of annual whole-body dose, annual penetrating gamma dose, annual non-penetrating gamma dose, beta dose, tritium dose, and fast and thermal neutron doses. Readings for all monitored Zia employees, LANL employees, other contract employees, and visitors total 175,416. LANL and Zia workers hired prior to 1978 have identification numbers consistent with other CEDR data file sets. This is not the case for most Zia workers hired after 1978, most LANL workers hired after 1978, and all other contract workers and visitors. There are

# LANL (Los Alamos/Zia)

## LAMULW02 Data File Set

readings on this file through 1985, but only readings prior to 1980 should be used. Revised exposure data beyond 1979 are available in the file LAE1FILE. The tritium data have also been revised and are available in the file LATFILE.

The fourth (LAE1FILE) contains external ionizing radiation data from the period 1980 through 1990 measured using thermoluminescent dosimeters. These data have recently been revised and replace the data beyond 1979 in LAEFILE. There are 843,496 records in this file. Included are badge readings taken at varying time intervals (annual, semi-annual, quarterly, etc.). Data consist of whole-body dose, tritium dose, shallow dose, penetrating dose, and an albedo neutron dose. Data are available for Zia, LANL, all visitors, and other contractors working at LANL during this period. Most Zia workers hired after 1978, most LANL workers hired after 1977, visitors, and other contractors do not have any identification numbers in this file. The tritium data in this file are revised and accurate and are duplicated for the years 1980-1988 in the file LATFILE.

The fifth working file (LABFILE) contains plutonium bioassay data for 1944 through October 1985. There are 43,693 records in this file. Measurements in 1944 are for nose swipes or urine samples. In March 1945, a formal bioassay program was established. Before 1968, all urine bioassay results were for plutonium-239 because that was the isotope used in that time frame. Thereafter, the results are labeled as plutonium-238 or plutonium-239. There are also a small number of results for plutonium-242. Until 1952, results were units of cpm/24 hours; from 1952 through 1977, they were dpm/24 hours; and from 1977 to 1985, they were pCi/24 hours. Generally, these are annual measurements, but some individuals have multiple readings for one plutonium isotope within a year, and some have separate readings for both isotopes within a year. All

measurements are included in the file for each monitored worker. In addition to the bioassay data, there is information on accidents and wounds involving possible plutonium uptake. Data are available for LANL, Zia, visitors, and other contract workers employed 1944-1985. The LANL and Zia workers, hired prior to 1978 and 1979 respectively, have individual identification numbers consistent throughout CEDR data file sets.

The sixth working file (LACFILE) contains estimated plutonium whole-body burdens as of January 1, 1987. There are 16,315 records. Results are given separately for the two isotopes of plutonium (238 and 239) in units of nanocuries (nCi) and nCi-years. The computer code PUQFUA was used at LANL to estimate plutonium body burdens using bioassay data. Data are available for LANL, Zia, visitors, and other contract workers in this file; however, only LANL and Zia workers have individual identification numbers consistent throughout CEDR data file sets.

The seventh file (LAC1FILE) contains estimated plutonium whole-body burdens as of January 1, 1985. There are 14,935 records. Results are given separately for the two isotopes of plutonium (238 and 239) in units of nCi and nCi-years. The computer code PUQFUA was used to generate these estimates using bioassay data. LANL and Zia workers have individual identification numbers consistent throughout CEDR data file sets.

The eighth file (LATFILE) contains 6,662 revised annual tritium readings available from 1950 to 1988. These readings replace any readings available in the file LAEFILE for the years 1950-1988. The tritium readings for the years 1980-1988 are duplicated on the file LAE1FILE. LANL and Zia workers have individual identification numbers consistent throughout CEDR data file sets.

# LANL (Los Alamos/Zia)

## LAMULW02 Data File Set

The ninth file (LAC2FILE) contains dates of exposure to 2, 5, and 10 nCi of plutonium-238 and plutonium-239, with data available through December 31, 1986. Data are abstracted from hard-copy records. Data are available for 726 workers from LANL, Zia, and other contractors in this file; however, only LANL and Zia workers have individual identification numbers consistent throughout CEDR data file sets. ❖

Number of Working Files: 9		
File Name	Number of Variables	Type of Data
LAPFILE	29	demographic data / LANL employees
ZAPFILE	29	demographic data / Zia employees
LAEFILE	14	annual external exposure
LAE1FILE	14	external ionizing radiation
LABFILE	21	plutonium bioassay data
LACFILE	14	estimated plutonium whole-body burdens
LAC1FILE	14	estimated plutonium whole-body burdens
LATFILE	7	revised annual tritium readings
LAC2FILE	9	dates of exposure to 2, 5, and 10 nCi of plutonium-238 and plutonium-239

### Variables for Working File LAPFILE

6 MB

Name	Description
id	identification number
sex	sex
race	race
educ	highest level of education
bstate	state of birth
bdate	birth date
hiredate	date of first hire at LANL
tdate	termination date from LANL
fjt	first job title at LANL
ljt	last job title at LANL
ddate	date of death
dsex	sex recorded on death certificate
drace	race recorded on death certificate
icda	ICD death code, 8th revision
icdaca	ICDA cancer code
auto	autopsy
state	state of death
ssa82	vital status per SSA 1982 submission
ssa843	vital status per SSA 1984 submission
ndi85	results of NDI 1985 submission
trace81	vital status traced
dla	date of last confirmed vital status
trace90	tracing results 1990
cvsoldla	vital status from old data base

sent82	sent to SSA in 1982
ntd	new termination date
vs79	vital status as of 12/31/79
ssa861	vital status per SSA 1986 submission
ndi92	vital status results 1992 NDI submission

LAMULW02

### Variables for Working File ZAPFILE

3 MB

Name	Description
<b>id</b>	identification number
<b>bdate</b>	birth date
<b>sex</b>	sex
<b>race</b>	race
<b>educ</b>	highest level of education
<b>hiredate</b>	date of first hire at Zia
<b>tdate</b>	termination date from Zia
<b>fjt</b>	first job title at Zia
<b>ljt</b>	last job title at Zia
<b>noh</b>	number of hires
<b>ext</b>	external monitored
<b>cbb84</b>	plutonium body burden 1984
<b>cumext</b>	whole-body external dose 1985
<b>ssa86</b>	vital status per SSA 1986 submission
<b>ddate</b>	death date
<b>icda</b>	ICD death code, 8th revision
<b>dsex</b>	sex recorded on death certificate
<b>drace</b>	race recorded on death certificate
<b>auto</b>	autopsy
<b>city</b>	city where the worker died
<b>county</b>	county where the worker died
<b>state</b>	state of death
<b>dla</b>	date of last confirmed vital status

<b>fbd</b>	birth date
<b>ssa87</b>	vital status per SSA 1987 submission
<b>nrwflag</b>	never reported for work
<b>fsex</b>	sex
<b>frace</b>	race
<b>eth</b>	ethnicity

### Variables for Working File LAEFILE

11 MB

Name	Description
<b>id</b>	identification number
<b>empcode</b>	employer code
<b>birthyr</b>	year of birth
<b>gexten</b>	group extension (1980-1985)
<b>syear</b>	year worker monitored for external rad.
<b>nonpen</b>	non-penetrating (1980-1985)
<b>beta</b>	beta dose to worker
<b>gammas</b>	non-penetrating gamma dose
<b>gammap</b>	penetrating gamma
<b>neutronf</b>	fast neutron dose
<b>neutront</b>	thermal neutron dose
<b>trit</b>	tritium dose to worker
<b>mvalue</b>	annual whole-body dose in centirem
<b>pengama2</b>	penetrating gamma dose (1980-1985)

### Variables for Working File LAE1FILE

53 MB

Name	Description
<b>id</b>	identification number
<b>empcode</b>	employer code
<b>byear</b>	year of birth
<b>badiss</b>	month badge was issued
<b>badret</b>	month badge was read
<b>badyear</b>	year worker was monitored
<b>loccode</b>	location code
<b>nonpen</b>	non-penetrating dose
<b>penetr</b>	penetrating gamma dose
<b>neutron</b>	neutron dose (albedo reading)
<b>tritium</b>	tritium dose to worker
<b>wbody</b>	whole-body dose
<b>cremrk</b>	code for unusual badge readings
<b>badtype</b>	badge type

Variables for Working File  
**LABFILE**

4 MB

Name	Description
<b>flag</b>	type of line
<b>id</b>	identification number
<b>group</b>	code for organization
<b>bdate</b>	birth date
<b>hpsex</b>	sex
<b>bplace</b>	birth place
<b>country</b>	country of birth
<b>vsd</b>	vital status
<b>ddate</b>	death date
<b>sdate</b>	date on which bioassay sample counts were taken
<b>mvalue</b>	measured value of bioassay reading
<b>atype</b>	type of assay
<b>accdte</b>	accident date
<b>acctype</b>	accident type
<b>wdate</b>	date on which counts were taken on wound
<b>wbur</b>	count on the wound in nCi
<b>wctype</b>	type of count
<b>wnum</b>	wound number
<b>iso</b>	isotope in wound
<b>pscount</b>	post-surgery count
<b>psflag</b>	post-surgery flag

Variables for Working File  
**LACFILE**

2 MB

Name	Description
<b>grpcode</b>	employer of worker
<b>lcbdate</b>	previous date for estimates
<b>pbbnci</b>	previous body burden in nCi
<b>edate</b>	date current burden estimated
<b>bbnci</b>	estimated body burden in nCi
<b>nciyrs</b>	estimated body burden in nCi-years
<b>lsdate</b>	last sample date
<b>ncils</b>	body burden as of last sample date
<b>nciyrsls</b>	body burden in nCi-years at last sample
<b>nsamp</b>	number bioassay samples for employee
<b>nvsamp</b>	number valid bioassay samples
<b>padate</b>	potential accident date
<b>isotope</b>	isotope of plutonium measured
<b>id</b>	identification number

Variables for Working File  
**LAC1FILE**

2 MB

Name	Description
<b>grpcode</b>	employer of worker
<b>lcbdate</b>	previous date for estimates
<b>pbbnci</b>	previous body burden in nCi
<b>edate</b>	date current body burden estimated
<b>bbnci</b>	estimated body burden in nCi
<b>nciyrs</b>	estimated body burden in nCi-years
<b>lsdate</b>	last sample date
<b>ncils</b>	body burden as of last sample date
<b>nciyrsls</b>	body burden in nCi-years at last sample
<b>nsamp</b>	number bioassay samples for employee
<b>nvsamp</b>	number valid bioassay samples
<b>padate</b>	potential accident date
<b>isotope</b>	isotope of plutonium measured
<b>id</b>	identification number

Variables for Working File  
**LATFILE**

580 KB

Name	Description
<b>id</b>	identification number
<b>empcode</b>	employer code
<b>birthyr</b>	year of birth
<b>syear</b>	year worker was monitored
<b>new</b>	revised tritium value
<b>old</b>	old tritium value
<b>ratio</b>	new value divided by old value

Variables for Working File

# LAC2FILE

193 KB

Name	Description
<b>id</b>	identification number
<b>mon239</b>	monitored for plutonium-239
<b>p29date</b>	date exposed to 2 nCi plutonium-239
<b>p59date</b>	date exposed to 5 nCi plutonium-239
<b>p109date</b>	date exposed to 10 nCi plutonium-239
<b>mon238</b>	monitored for plutonium-238
<b>p28date</b>	date exposed to 2 nCi plutonium-238
<b>p58date</b>	date exposed to 5 nCi plutonium-238
<b>p108date</b>	date exposed to 10 nCi plutonium-238

# LANL (Mound)

## MDFACW02 Data File Set

### Description

The MDFACW02 data file set consists of four working files prepared for epidemiologic studies of workers at the Mound Plant in Ohio.

The MDFACW02 data file set consists of four working files that were generated by the Epidemiology Section at the Los Alamos National Laboratory (LANL) for mortality studies of workers employed at Mound. Data were obtained in various formats and media from Mound departments and other agencies.

Demographic data were abstracted from employment record cards and employee information sheets provided by the Personnel Department at Mound. Supplemental data were obtained from the Social Security Administration (SSA) 941A forms, Mound medical records, and Mound health physics records. Death information was abstracted from death certificates obtained from various states. External ionizing radiation exposure and polonium bioassay data, in hard copy, were provided by the Health Physics Department at Mound.

The four files in the MDFACW02 data file set are segregated by type of data: demographic, work history, external exposure and polonium bioassay results. Data pertaining to an individual that appear in one or more files may be linked by the individual identification number assigned to each worker.

The first working file (MDPERSON) contains demographic information, including race, sex, and birth date; limited work history information; and death information, such as cause of death, date of death, and state of death, for 6,881 male and female workers hired between 1941 and 1979, inclusive. The file includes 1,692 females, 5,182 males, and 7 with unknown sex. Race was determined for 88% of the workers. Death information was last obtained in 1992 using a submission to the National

Death Index (NDI). The NDI searched records available from 1979 through 1990. There are 1,730 deaths identified in this working file. Cause-of-death information (ICDA8) is not available for three deaths. The last effort to obtain confirmed vital status information for the entire cohort was also conducted in 1992 with a submission to the TRAX service followed by mail and phone tracing. Vital status was confirmed for 90% of the cohort through January 1, 1989.

The second working file (MNDOCCUP) contains occupational histories from 1941 through 1981 for 6,771 employees. There are 20,977 records in the file. The file includes dates started on the job, the verbatim job title used by Mound, and an alphanumeric job code used by Mound, which was associated with each job title. For approximately one-third of the cohort, some single employment intervals were mistakenly coded as two distinct periods of employment. This information has never been used in any studies and should be revised before use.

The third working file (MNDEXTER) contains the external ionizing radiation exposure data. There are 32,351 records for 4,081 identified individuals and 438 records for individuals not assigned an identification number. The years covered by this file are 1947 through 1979. The variables include annual neutron, tritium, and whole-body dose (in millirems) incurred while working at the Mound Plant and the neutron, tritium, and whole-body doses received prior to employment at Mound.

The fourth working file (MNDPOLON) contains results of polonium urine bioassays between March 30, 1944, and June 5, 1984. There are 201,652 records for 2,788 individuals. The data include the date of the sample, polonium activity in the sample, volume of urine in the sample, and any comments about the particular sample or its results. ❖

# LANL (Mound)

MDFACW02 Data File Set

Number of Working Files: 4		
File Name	Number of Variables	Type of Data
MDPERSON	20	demographic information
MNDOCCUP	4	work history
MNDEXTER	10	external exposure
MNDPOLON	5	polonium urine bioassay results

## Variables for Working File MDPERSON

1 MB

Name	Description
id	identification number
bdate	birth date
sex	sex
educ	education
hiredate	date of first hire at Mound
termdate	date of last termination from Mound
ddate	date of death
icda8	ICD death code - 8th revision
autopsy	autopsy
dsex	sex on death certificate
drace	race on death certificate
dcity	city of death
dstate	state of death
dcounty	county of death
race	race
dmvflag	submitted to Ohio Department of Motor Vehicles (DMV) in 1988
dmvdate	activity date returned by DMV
cvs	vital status as of study end date, 1983
ssa861	results of a 1986 SSA submission
dla	date last alive

## Variables for Working File MNDOCCUP

2 MB

Name	Description
jobcode	job code
jobstart	date started on this job
jobtitle	job title
id	identification number

Variables for Working File  
MNDEXTER

2 MB

Name	Description
<b>id</b>	identification number
<b>neutron</b>	neutron dose prior to date of hire
<b>tritium</b>	tritium dose prior to date of hire
<b>whbody</b>	whole-body dose prior to date of hire
<b>expyear</b>	year of exposure
<b>yneutron</b>	yearly neutron exposure
<b>ytritium</b>	tritium exposure for the year
<b>ywbody</b>	whole-body exposure for the year
<b>ltotal</b>	(variable unused by researcher - no documentation available)
<b>rounded</b>	indicates rounded data

Variables for Working File  
MNDPOLON

8 MB

Name	Description
<b>id</b>	identification number
<b>sampdate</b>	date of sample
<b>poactiv</b>	polonium activity in counts per minute
<b>volume_</b>	volume of the sample for analyses
<b>comment_</b>	comments regarding the sample



# MULTIPLE MYELOMA

## MFMM98W1 Data File Set

### Description

This working data file set consists of seventeen files which support the analytic files of the data file set mfmm98a1. For each of the four sites (Hanford, Los Alamos, Oak Ridge, and Savannah River) included in the study there are three files: an agents inventory, building lists, and industrial hygiene data. In addition, there is one file of references used for exposure assessment and another file listing chemicals by name and CAS number. ❖

Number of Working Files: 17		
File Name	Number of Variables	Type of Data
CHEMCODE	3	chemical and physical agents list
HAN_AG	9	chemical and physical agents list
HAN_BLG	6	building list
HAN_IH	14	industrial hygiene monitoring data
LANL_AG	9	chemical and physical agents list
LANL_BLG	6	building list
LANL_IH	14	industrial hygiene monitoring data
LANL_ORG	8	division, department, building list
ORNL_AG	9	chemical and physical agents list
ORNL_BLG	6	building list
ORNL_IH	14	industrial hygiene monitoring data
ORNL_ORG	8	division, department building list
REFS	5	reference list
SRS_AG	9	chemical and physical agents list
SRS_BLG	6	building list
SRS_IH	14	industrial hygiene monitoring data
SRS_ORG	8	division, department, building list

Variables for Working File CHEMCODE 104 KB		Variables for Working File HAN_AG 299 KB		Variables for Working File HAN_BLG 65 KB		Variables for Working File HAN_IH 204 KB	
Name	Description	Name	Description	Name	Description	Name	Description
<b>agent</b>	name of agent	<b>agent</b>	name of agent	<b>begdate</b>	beginning date of building/location	<b>agent</b>	name of agent
<b>agentid</b>	agent description	<b>begdate</b>	beginning date of inventory	<b>date</b>	reference date	<b>date</b>	date of sample
<b>cas</b>	agent number	<b>cas</b>	agent number	<b>facility</b>	DOE facility/site	<b>dep_grp</b>	department/group
		<b>date</b>	date of inventory	<b>location</b>	primary building or location	<b>descript</b>	description of the sampling episode
		<b>dep_grp</b>	department/group	<b>locinfo</b>	building/location information	<b>facility</b>	DOE facility/site
		<b>enddate</b>	ending date of inventory	<b>referenc</b>	information source	<b>jobtitle</b>	job titles of individuals sampled
		<b>facility</b>	DOE facility/site			<b>location</b>	primary building or location
		<b>invtxt</b>	agent inventory information			<b>quantity</b>	intensity or level of exposure
		<b>referenc</b>	information source			<b>referenc</b>	information source
						<b>room</b>	secondary location or room
						<b>sampleid</b>	unique sample number
						<b>site</b>	site or area
						<b>type</b>	sample type
						<b>uom</b>	units of measure (quantity)

Variables for Working File  
LANL\_AG

253 KB

Name	Description
<b>agent</b>	name of agent
<b>begdate</b>	beginning date of inventory
<b>cas</b>	agent number
<b>date</b>	date of inventory
<b>dep_grp</b>	department/group
<b>enddate</b>	ending date of inventory
<b>facility</b>	DOE facility/site
<b>invtxt</b>	agent inventory information
<b>referenc</b>	information source

Variables for Working File  
LANL\_BLG

3 KB

Name	Description
<b>begdate</b>	beginning date of building/location
<b>date</b>	reference date
<b>facility</b>	DOE facility/site
<b>location</b>	primary building or location
<b>locinfo</b>	building/location information
<b>referenc</b>	information source

Variables for Working File  
LANL\_IH

719 KB

Name	Description
<b>agent</b>	name of agent
<b>date</b>	date of sample
<b>dep_grp</b>	department/group
<b>descript</b>	description of the sampling episode
<b>facility</b>	DOE facility/site
<b>jobtitle</b>	job titles of individuals sampled
<b>location</b>	primary building or location
<b>quantity</b>	intensity or level of exposure
<b>referenc</b>	information source
<b>room</b>	secondary location or room
<b>sampleid</b>	unique sample number
<b>site</b>	site or area
<b>type</b>	sample type
<b>uom</b>	units of measure (quantity)

Variables for Working File  
LANL\_ORG

128 KB

Name	Description
<b>building</b>	primary location or building
<b>date</b>	date of division/department/group listing
<b>dep_grp</b>	number, name or abbreviation of department or group
<b>deptinfo</b>	department information
<b>divinfo</b>	division information
<b>division</b>	division
<b>facility</b>	DOE facility/site
<b>referenc</b>	information source

MFMM198W1

Variables for Working File  
ORNL\_AG

52 KB

Name	Description
<b>agent</b>	name of agent
<b>begdate</b>	beginning date of inventory
<b>cas</b>	agent number
<b>date</b>	date of inventory
<b>dep_grp</b>	department/group
<b>enddate</b>	ending date of inventory
<b>facility</b>	DOE facility/site
<b>invtxt</b>	agent inventory information
<b>referenc</b>	information source

Variables for Working File  
ORNL\_BLG

84 KB

Name	Description
<b>begdate</b>	beginning date of building/location
<b>date</b>	reference date
<b>facility</b>	DOE facility/site
<b>location</b>	primary building or location
<b>locinfo</b>	building/location information
<b>referenc</b>	information source

Variables for Working File  
ORNL\_IH

341 KB

Name	Description
<b>agent</b>	name of agent
<b>date</b>	date of sample
<b>dep_grp</b>	department/group
<b>descript</b>	description of the sampling episode
<b>facility</b>	DOE facility/site
<b>jobtitle</b>	job titles of individuals sampled
<b>location</b>	primary building or location
<b>quantity</b>	intensity or level of exposure
<b>referenc</b>	information source
<b>room</b>	secondary location or room
<b>sampleid</b>	unique sample number
<b>site</b>	site or area
<b>type</b>	sample type
<b>uom</b>	units of measure (quantity)

Variables for Working File  
ORNL\_ORG

308 KB

Name	Description
<b>building</b>	primary location or building
<b>date</b>	date of division/department/group listing
<b>dep_grp</b>	number, name or abbreviation of department or group
<b>deptinfo</b>	department information
<b>divinfo</b>	division information
<b>division</b>	division
<b>facility</b>	DOE facility/site
<b>referenc</b>	information source

Variables for Working File  
**REFS**  
136 KB

Name	Description
<b>author</b>	author(s) of reference
<b>date</b>	publication date of document
<b>publishr</b>	publisher of reference
<b>referenc</b>	reference identifier
<b>title</b>	reference title

Variables for Working File  
**SRS\_AG**  
139 KB

Name	Description
<b>agent</b>	name of agent
<b>begdate</b>	beginning date of inventory
<b>cas</b>	agent number
<b>date</b>	date of inventory
<b>dep_grp</b>	department/group
<b>enddate</b>	ending date of inventory
<b>facility</b>	DOE facility/site
<b>invtxt</b>	agent inventory information
<b>referenc</b>	information source

Variables for Working File  
**SRS\_BLG**  
12 KB

Name	Description
<b>begdate</b>	beginning date of building/location
<b>date</b>	reference date
<b>facility</b>	DOE facility/site
<b>location</b>	primary building or location
<b>locinfo</b>	building/location information
<b>referenc</b>	information source

Variables for Working File  
**SRS\_IH**  
289 KB

Name	Description
<b>agent</b>	name of agent
<b>date</b>	date of sample
<b>dep_grp</b>	department/group
<b>descript</b>	description of the sampling episode
<b>facility</b>	DOE facility/site
<b>jobtitle</b>	job titles of individuals sampled
<b>location</b>	primary building or location
<b>quantity</b>	intensity or level of exposure
<b>referenc</b>	information source
<b>room</b>	secondary location or room
<b>sampleid</b>	unique sample number
<b>site</b>	site or area
<b>type</b>	sample type
<b>uom</b>	units of measure (quantity)

Variables for Working File

# SRS\_ORG

55 KB

Name	Description
<b>building</b>	primary location or building
<b>date</b>	date of division/ department/group listing
<b>dep_grp</b>	number, name or abbreviation of department or group
<b>deptinfo</b>	department information
<b>divinfo</b>	division information
<b>division</b>	division
<b>facility</b>	DOE facility/site
<b>referenc</b>	information source

# MULTIPLE MYELOMA

## MFMM98W2 Data File Set

### Description

This working data file set consists of eight files which support the analytic files of the data file set mfmm98a1. The following information is contained within these files: Los Alamos detailed external radiation data for the years 1944-1990, Oak Ridge film badge data, Oak Ridge neutron monitoring data, Oak Ridge results from pocket chambers, Savannah River film badge data, Savannah River external radiation data, and Savannah River results from pocket chambers. ❖

Number of Working Files: 8		
File Name	Number of Variables	Type of Data
LANLED44	37	LANL detailed external radiation (1944-79)
LANLED80	22	LANL detailed external radiation (1980-90)
ORNL_FB	5	ORNL film badge
ORNLNEUT	7	ORNL neutron
ORNL_PC	7	ORNL pocket chamber
SRS_FB	5	SRS film Badge
SRS_HPAR	10	SRS external radiation data from HPAREH
SRS_PC	7	SRS pocket chamber

Variables for Working File

LANLED44

77 KB

Name	Description
area_1	first H-1 code
area_2	second H-1 code
area_3	third H-1 code
area_4	fourth H-1 code
id	identification number
facility	DOE facility
fas_dose	fast neutron dose
fas_read	number of fast neutron readings
fas_zero	number of zero-dose fast neutron readings
gam_dose	total gamma dose
gam_read	number of gamma readings
gam_zero	number of zero-dose gamma readings
locat_1	first assigned work location
locat_2	second assigned work location
locat_3	third assigned work location
locat_4	fourth assigned work location
locat_5	fifth assigned work location
locat_6	sixth assigned work location
mon_pd1	first monitoring period
mon_pd2	second monitoring period
mon_pd3	third monitoring period
rec_excl	number of records excluded

tot_rec	total number of records for year
por_yr1	first portion of year monitored
por_yr2	second portion of year monitored
spec_mp1	notes - first monitoring period
spec_mp2	notes - second monitoring period
spec_mp3	notes - third monitoring period
spec_py1	notes - first portion of year monitored
spec_py2	notes - second portion of year monitored
thr_dose	total thermal neutron (slow) dose
thr_read	number of thermal neutron (slow) readings for year
thr_zero	number of zero-dose thermal neutron (slow) reading
tri_dose	total tritium dose
tri_read	number of tritium readings
tri_zero	number of zero-dose tritium readings
year	year of recorded dose

Variables for Working File

LANLED80

4 KB

Name	Description
area_1	first H-1 code
area_2	second H-1 code
id	identification number
facility	DOE facility
gam_read	number of gamma readings
gam_dose	gamma dose
gam_zero	number of zero-dose gamma readings
mon_pd1	first monitoring period
mon_pd2	second monitoring period
neu_read	number of fast neutron readings
neu_dose	fast neutron dose
neu_zero	number of zero-dose fast neutron reading
por_yr1	first portion of year monitored
rec_excl	number of records excluded
spec_mp1	notes - first monitoring period
spec_mp2	notes - second monitoring period
spec_py1	notes - first portion of year monitored
tot_rec	total number of records for year
tri_read	number of tritium readings
tri_dose	tritium dose
tri_zero	number of zero-dose tritium readings
year	year of recorded dose

Variables for Working File

ORNL\_FB

287 KB

Name	Description
id	identification number
facility	DOE facility
film_s	film badge reading
spl_date	date of FB reading
units	units of FB reading

Variables for Working File  
ORNLNEUT

22 KB

Name	Description
<b>id</b>	identification number
<b>facility</b>	DOE facility
<b>lld</b>	lower limit of detection
<b>neutron</b>	neutron dose
<b>spl_date</b>	date neutron badge reading
<b>tracks</b>	number of tracks
<b>units</b>	units of neutron badge reading

Variables for Working File  
ORNL\_PC

708 KB

Name	Description
<b>id</b>	identification number
<b>facility</b>	DOE facility
<b>pocket_1</b>	first pocket chamber reading
<b>pocket_2</b>	second pocket chamber reading
<b>spl_date</b>	date of PC reading
<b>units_1</b>	units of first PC reading
<b>units_2</b>	units of second PC reading

Variables for Working File  
SRS\_FB

19 KB

Name	Description
<b>id</b>	identification number
<b>facility</b>	DOE facility
<b>film_s</b>	FB reading
<b>spl_date</b>	date of FB reading
<b>units</b>	units of FB reading

Variables for Working File  
SRS\_HPAR

22 KB

Name	Description
<b>id</b>	identification number
<b>facility</b>	DOE facility
<b>internal</b>	internal dose
<b>source</b>	source of data
<b>tld_deep</b>	TLD deep dose
<b>tld_shal</b>	TLD shallow dose
<b>tld</b>	neutron TLD dose
<b>tritium</b>	tritium dose
<b>units</b>	units of results
<b>year</b>	year of recorded dose

Variables for Working File

# SRS\_PC

8 KB

Name	Description
<b>id</b>	identification number
<b>facility</b>	DOE facility
<b>pocket_1</b>	first PC reading
<b>pocket_2</b>	second PC reading
<b>spl_date</b>	date of PC reading
<b>units_1</b>	units of first PC reading
<b>units_2</b>	units of second PC reading

# MULTIPLE MYELOMA

## MFMM98W3 Data File Set

### Description

This working data file set consists of six files which support the analytic files of the data file set mfmm98a1. The following information is contained within these files: Hanford bioassay results, Los Alamos and Zia bioassay results, Oak Ridge bioassay results, Savannah River bioassay results, and whole body counts. ❖

Number of Working Files: 6		
File Name	Number of Variables	Type of Data
HAN_BIO	14	bioassay results - Hanford
LANL_BIO	9	bioassay results - LANL
LANL_PU	9	plutonium bioassay results - LANL/Zia
ORNL_BIO	14	bioassay results - ORNL
SRS_BIO	12	bioassay results- SRS workers
WBC	5	whole body counts

Variables for Working File HAN_BIO	
94 KB	
Name	Description
<b>id</b>	identification number
<b>ct_date</b>	analysis date of bioassay
<b>nuclide</b>	radionuclide
<b>rpt_spl</b>	repeat sample flag
<b>type</b>	type of sample
<b>reason</b>	reason for assay
<b>spl_vol</b>	sample volume
<b>nscd_sa</b>	reason for no sample volume
<b>u_ci_spl</b>	results in microcuries per sample
<b>u_ci_l</b>	results in microcuries per liter
<b>dpm_spl</b>	results in dpm per sample
<b>facility</b>	DOE facility
<b>unit_vol</b>	measurement units of sample volume
<b>source</b>	source of data

Variables for Working File LANL_BIO	
12 KB	
Name	Description
<b>id</b>	identification number
<b>date</b>	date of assay
<b>type</b>	type of biological sample
<b>nuclide</b>	radionuclide
<b>quantity</b>	sample result
<b>reason</b>	reason for assay
<b>rpt_spl</b>	repeat sample flag
<b>units</b>	measurement units of sample result
<b>facility</b>	DOE facility

Variables for Working File LANL_PU	
25 KB	
Name	Description
<b>id</b>	identification number
<b>cpm_24hr</b>	results in cpm/24 hours
<b>ct_date</b>	date of bioassay
<b>dpm_24hr</b>	results in dpm/24 hours
<b>facility</b>	DOE facility or site
<b>fileid</b>	file identifying original source of data
<b>nuclide</b>	radionuclide assayed
<b>pci_24hr</b>	results in pci/24 hours
<b>samptype</b>	sample validity

Variables for Working File ORNL_BIO	
22 KB	
Name	Description
<b>id</b>	identification number
<b>facility</b>	DOE facility
<b>ct_date</b>	date of sample analysis
<b>spl_vol</b>	sample volume
<b>unit_vol</b>	measurement units of sample volume
<b>nuclide</b>	radionuclide assayed
<b>spl_dpm</b>	sample reading in dpm for analyzed sample
<b>tspl_dpm</b>	sample reading in dpm for collected sample
<b>dpm_24hr</b>	sample result: dpm/24 hours
<b>rpt_spl</b>	repeat sample flag
<b>cpm_24hr</b>	sample result: cpm per 24 hours
<b>pci_24hr</b>	sample result: pci per 24 hours
<b>samptype</b>	type of sample
<b>source</b>	source of data

Variables for Working File

SRS\_BIO

306 KB

Name	Description
<b>id</b>	identification number
<b>spl_date</b>	date of bioassay
<b>isotope</b>	radionuclide assayed
<b>result</b>	bioassay result
<b>rpt_lev</b>	results reported as less than reportable level
<b>repeat</b>	repeat sample flag
<b>p_m</b>	recorded error (+, -) for result
<b>unclear</b>	unclear reading
<b>units</b>	measurement units of result
<b>beta</b>	beta flag
<b>gamma</b>	gamma flag
<b>facility</b>	DOE facility

Variables for Working File

WBC

39 KB

Name	Description
<b>id</b>	identification number
<b>wbcdate</b>	date of invivo count
<b>facility</b>	DOE facility associated with invivo count
<b>nuclide</b>	radionuclide counted
<b>reason</b>	reason for invivo count



# ORISE (Multiple Facilities)

## ORISEWDS Data File Set

### Description

The ORISEWDS data file set is comprised of a collection of working files that were developed by the Center for Epidemiologic Research (CER), Medical Sciences Division, Oak Ridge Institute for Science and Education (ORISE). CER obtained these data in various formats and media from the facilities where the workers were employed and from several other agencies, such as the Social Security Administration. To ensure the integrity of the data in the transcription from hard copy to electronic media, a double-entry method was used whereby one person entered the data and a second person entered the same data for verification purposes.

The files in the ORISEWDS working data file set originated as part of CER's data model, a relational data base of epidemiologic data. Most of the files contain a large volume of data, which usually pertain to more than one site or facility, and are maintained in a relational data base management system. This design provides efficient data storage and facilitates the frequent addition of new or corrected data. The dynamic nature of the data model means that the working files comprising the ORISEWDS data file set are a snapshot of the files at CER and that subsequent updates that will be placed in CEDR may be different from the current working files in the ORISEWDS data file set.

The files in the ORISEWDS are roughly segregated by type of data. Each worker has been assigned a unique identification number, which can be used to relate data that may appear in a number of files. This allows users to compile all data for a given individual or cohort.

There are ten files in the ORISEWDS data file set that primarily contain demographic and work history data. They are MR, EMP, PAYCD, JOB, DEPTCD, MVITAL, DEATH, ERR, MERGED, and FIXED. The MR (master roster) file contains one record per

person. All other files may have multiple records or no records for an individual, depending on the type and availability of the data.

The remaining working files in the ORISEWDS data file set contain data relating to personal radiation monitoring information that were obtained from various facilities at which the individual worked. Due to the volume and nature of these data, they are segregated by facility and by type of monitoring, such as external monitoring, whole-body counting, and urinalysis results. The individual identification numbers in these files allow these data to be linked to pertinent data that may appear in other files in the ORISEWDS data file set. Therefore, the proper combination of files will provide a complete picture of data for an individual or for a particular cohort of interest. More detailed information about each of the working files in the ORISEWDS data file set is provided in the file-level structured documentation. ♦♦

### Additional References

Watkins, J. P., D. L. Cragle, E. L. Frome, C. M. West, D. J. Crawford-Brown, and W. G. Tankersley. 1994. *Adjusting external doses from the ORNL and Y-12 facilities for the Oak Ridge Nuclear Facilities Mortality Study*. ORISE 94/G-34.

Watkins, J.P., et al. 1993. *Data collection, validation, and description for the Oak Ridge Nuclear Facilities Mortality Study*. ORISE 93/J-42.

Fry, S. A., et al. 1994. *Health and mortality among contractor employees at U.S. Department of Energy facilities*. American Chemical Society Series: Advances in Chemistry, edited by J. P. Young and R. S. Yalow, vol. 243. Washington, D.C.: American Chemical Society.

# ORISE (Multiple Sites)

ORISEWDS Data File Set

Number of Working Files: 32					
File Name	Number of Variables	Type of Data	File Name	Number of Variables	Type of Data
MR	19	master roster	Y12EXT5080	24	external exposures, 1950-80
EMP	10	employment data	Y12EXT8184	20	external exposures, 1981-84
PAYCD	7	pay status data	Y12EXT8588	22	external exposures, 1985-88
JOB	9	job titles	Y12WBC	28	whole-body count results
DEPTCD	9	department data	Y12URIN	28	urinalysis results
MVITAL	8	vital status	LINDEFB	10	external exposure
DEATH	9	death data	SRAbstracted	11	abstracted Savannah River exposure/monitoring data
ERROR	8	error data	SRFayerwether	13	dosimetry data
FIXED	10	error data	SRHPAREA1	57	Savannah River monitoring data, part 1
MERGED	6	merged id's	SRHPAREA2	254	Savannah River monitoring data, part 2
FMPCFB	23	external radiation exposures	MCW_BRTHRADON 5		breath radon
FMPCWBC	24	whole-body count	MCW_FB	8	external radiation exposures
FMPCURIN	35	urinalysis results	MCW_URIN	7	urinalysis results
K25EXT	37	external exposures	MCW_X-RAY	10	medical x-ray data
K25WBC	25	whole-body count results			
K25URIN	17	urinalysis results			
X10EXT	18	external exposures			
X10WBC	10	whole-body count results			
X10URIN	8	urinalysis results			

Variables for Working File MR	
26 MB	
Name	Description
id	identification number
sex	sex code of individual
sex_arc	sex archive flag
race	race code
race_arc	race archive flag
birthdte	birth date of individual
birthflg	birth date estimation flag
birtharc	birth date archive flag
nofac	number of facilities worked at
fac1	facility 1
fac2	facility 2
fac3	facility 3
fac4	facility 4
fac5	facility 5
fac6	facility 6
fac7	facility 7
fac8	facility 8
fac9	facility 9
fac10	facility 10

Variables for Working File EMP	
22 MB	
Name	Description
id	identification number
facility	facility code
hiredate	date of hire at facility
hirearch	hire date archive flag
termdate	date of termination at facility
termarch	termination date archive flag
htflag	hire/termination estimation flag
fht	first hire/last termination flag
active	flag indicating if person is active
actdate	date associated with active employees

Variables for Working File PAYCD	
6 MB	
Name	Description
id	identification number
facility	facility code
date_	date pay code became effective
datearch	date archive flag
dateflag	date estimation flag
paycode	pay code
payarch	pay code archive flag

Variables for Working File JOB	
25 MB	
Name	Description
id	identification number
facility	facility code
date_	date job code/title became effective
datearch	date archive flag
dateflag	date estimation flag
jobcode	code associated with job title
jobcdarc	job code archive flag
jobtitle	job title per the facility
jobtiarc	job title archive flag

**Variables for Working File  
DEPTCD**

17 MB

Name	Description
<b>id</b>	identification number
<b>facility</b>	facility code
<b>date_</b>	date department code become effective
<b>datearch</b>	date archive flag
<b>dateflag</b>	date estimation flag
<b>deptcode</b>	code value for department
<b>deptarch</b>	department code archive flag
<b>plntcode</b>	plant code
<b>plntarch</b>	plant code archive flag

**Variables for Working File  
MVITAL**

30 MB

Name	Description
<b>id</b>	identification number
<b>agency</b>	agency (source) supplying vital status
<b>submisyr</b>	year submission was made
<b>submisno</b>	sequential submission number for this year
<b>status</b>	vital status
<b>statdate</b>	status date
<b>commentf</b>	comment flag
<b>state</b>	state of vital status

**Variables for Working File  
DEATH**

3 MB

Name	Description
<b>id</b>	identification number
<b>datedth</b>	date of death
<b>icd8</b>	cause of death coded to ICD8 rules
<b>ca8</b>	underlying cancer cause of death (ICD8)
<b>icd9</b>	cause of death coded to ICD9 rules
<b>ca9</b>	underlying cancer cause of death (ICD9)
<b>icdstat</b>	status of ICD coding
<b>verstat</b>	status of verification
<b>statedth</b>	state of death

Variables for Working File  
**ERROR**

3 MB

Name	Description
<b>id</b>	identification number
<b>facility</b>	facility code
<b>progdet</b>	name of program detecting error
<b>datedet</b>	date error was detected
<b>errorcde</b>	error code
<b>field1</b>	comment field #1
<b>field2</b>	comment field #2
<b>field3</b>	comment field #3

Variables for Working File  
**FIXED**

2 MB

Name	Description
<b>id</b>	identification number
<b>facility</b>	facility code
<b>progdet</b>	name of program detecting error
<b>datedet</b>	date error was detected
<b>errorcde</b>	error code
<b>datefix</b>	date error was fixed
<b>fixsrce</b>	source of how error was fixed
<b>field1</b>	comment field #1
<b>field2</b>	comment field #2
<b>field3</b>	comment field #3

Variables for Working File  
**MERGED**

65 MB

Name	Description
<b>reqnumb</b>	request number of merge
<b>datemrg</b>	date merge took effect
<b>idprim</b>	ID merged "into"
<b>idsecond</b>	ID merged "from"
<b>mrgstat</b>	status of merge
<b>reqstor</b>	person making request

Variables for Working File  
FMPCFB

7 MB

Name	Description
<b>birthdte</b>	birth date
<b>sex</b>	sex code
<b>resuldt</b>	result date of FB/TLD reading
<b>id</b>	identification number
<b>linkcode</b>	link code indicating how record was linked
<b>beta</b>	beta exposure
<b>gamma</b>	gamma exposure
<b>betaytd</b>	beta year-to-date exposure
<b>gammaytd</b>	gamma year-to-date exposure
<b>fileid</b>	file identification
<b>termcode</b>	termination code (if applicable)
<b>costcntr</b>	cost center employee assigned to
<b>betacode</b>	beta code
<b>gamacode</b>	gamma code
<b>empbeta</b>	employee's beta dose for period
<b>empgamma</b>	employee's gamma dose for employment period
<b>xcesbeta</b>	excess beta code
<b>xcesgama</b>	excess gamma code
<b>dbx_code</b>	damaged badge code
<b>totexcd</b>	another unknown—all occurrence blank
<b>id_punch</b>	data entry code
<b>radconst</b>	radiation constant
<b>startend</b>	start and end period

Variables for Working File  
FMPCWBC

1 MB

Name	Description
<b>id</b>	identification number
<b>thwork</b>	thorium worker
<b>term</b>	termination date
<b>lastday</b>	last day worked by employee
<b>medflg</b>	medical flag
<b>cdate</b>	in-vivo counting date
<b>plant</b>	plant area where employee worked
<b>jobtit</b>	employee's job title
<b>daysoff</b>	days off without exposure
<b>ctype</b>	counting time in relation to shift
<b>u235</b>	result of U-235 in-vivo count
<b>totu</b>	result of total uranium in-vivo count
<b>th</b>	result of thorium in-vivo count
<b>pb</b>	result of lead-212 in-vivo count
<b>ac</b>	result of actinium in-vivo count
<b>mat6</b>	additional material in the in-vivo count
<b>mat7</b>	second additional material in the in-vivo count
<b>remark1</b>	remarks field
<b>remark2</b>	remarks field
<b>text_</b>	flag indicating general text on form
<b>rownum</b>	row number
<b>linkcode</b>	code indicating how record was linked
<b>id</b>	identification number

Variables for Working File  
FMPCURIN

56 MB

Name	Description
<b>id</b>	identification number
<b>fileid</b>	file identification
<b>sdate</b>	date sample was taken
<b>dateflag</b>	flag associated with date
<b>smonth</b>	month sample was taken
<b>sday</b>	day sample was taken
<b>syear</b>	year sample was taken
<b>hour</b>	hour when sample was taken
<b>result</b>	result of urinalysis sample
<b>resultflg</b>	urinalysis result flag
<b>result2</b>	result of urinalysis sample
<b>startend</b>	starting and ending year
<b>costcntr</b>	Fernald cost center
<b>samptype</b>	sample type
<b>plantnum</b>	plant number
<b>plntarea</b>	plant area
<b>wrklevel</b>	employee's work level
<b>job_code</b>	employee job code
<b>shift</b>	shift the sample was taken
<b>rec_seq</b>	record sequence number
<b>sex</b>	sex code
<b>sampgrp</b>	sample grouping code
<b>urincnst</b>	urinalysis constraint
<b>matexp</b>	material exposure code
<b>samp_req</b>	sample requisition number
<b>analyfor</b>	code for material analyzed for
<b>samp_no</b>	number assigned to sample
<b>jobtit</b>	employee job title
<b>dept_div</b>	department/division
<b>plantloc</b>	location worked
<b>reassamp</b>	reason for sample
<b>othjobco</b>	other job comments
<b>coment_</b>	comments

## Variables for Working File

## K25EXT

30 MB

Name	Description
<b>id</b>	identification number
<b>linkcode</b>	code indicating how record was linked
<b>monyear</b>	year of monitoring
<b>monqtr</b>	quarter of monitoring
<b>beta</b>	result for beta exposure
<b>gamma</b>	result for gamma exposure
<b>skindose</b>	result for skin dose
<b>pendose</b>	result for penetrating dose
<b>plntcode</b>	plant code
<b>grupcode</b>	group code
<b>modcode</b>	code showing if film was damaged
<b>rack</b>	rack number used in processing
<b>tray</b>	tray number used in processing
<b>tlddamag</b>	TLD damage flag
<b>damagdte</b>	date TLD was damaged
<b>commnts_</b>	comments on damaged, lost, estimated TLD
<b>tldnumb</b>	TLD number
<b>dateread</b>	date TLD was read
<b>tldpen</b>	penetrating dose per TLD reading
<b>tldskin</b>	skin dose per TLD reading
<b>dteassgn</b>	date TLD was assigned
<b>dept</b>	individual's department code
<b>damagflg</b>	flag showing if film was damaged
<b>birthdte</b>	date of birth
<b>exchange</b>	schedule for exchanging TLD
<b>commdate</b>	date of comment
<b>tldcomm</b>	comments on TLD readings
<b>plntcod_</b>	plant code

<b>denplas</b>	film density behind plastic shield
<b>denalum</b>	film density behind aluminum shield
<b>dencad</b>	film density behind cadmium shield
<b>denopen</b>	film density behind open window
<b>neutron</b>	neutron dose
<b>filmdept</b>	department of employment
<b>year</b>	4 digit year of monitoring
<b>seqnumb</b>	sequence number if multiple quarter results
<b>qtrinput</b>	quarter film was input

## Variables for Working File

## K25WBC

267 KB

Name	Description
<b>id</b>	identification number
<b>linkcode</b>	code indicating how record was linked
<b>runnumb</b>	unique identifier assigned to run
<b>rundate</b>	date of the run
<b>control</b>	run made for a control
<b>dept</b>	department code at time of run
<b>birthyr</b>	year of birth of individual
<b>sex</b>	sex of individual
<b>weight</b>	weight of subject
<b>chest</b>	chest thickness of subject
<b>surface</b>	amount of surface contamination
<b>runtime</b>	length of run in minutes
<b>type_</b>	type of analysis performed
<b>material</b>	type of material exposed to
<b>ratio</b>	front-to-back ratio
<b>u235lung</b>	amount of U-235 in lungs
<b>thorium</b>	amount of thorium in lungs
<b>cesium</b>	cesium 137 count at time of run
<b>potassium</b>	potassium count at time of run
<b>u238lung</b>	amount of U-238 in lungs
<b>actinium</b>	actinium count at time of the run
<b>lead</b>	lead 212 count at time of the run
<b>technet</b>	technetium count at time of run
<b>reptmon</b>	month results reported
<b>curredept</b>	current department code of subject

Variables for Working File  
K25URIN

25 MB

Name	Description
<b>id</b>	identification number
<b>linkcode</b>	code indicating how record was linked
<b>sampnumb</b>	number assigned to bioassay sample
<b>divcode</b>	code indicating division of individual
<b>dept</b>	department code of individual
<b>subdept</b>	code indicating subgroup of department
<b>payroll</b>	salaried/hourly indicator
<b>type_</b>	type or reason for analysis
<b>recall</b>	number of times recalled
<b>shift</b>	shift employee worked
<b>frequency</b>	frequency of monitoring
<b>datesamp</b>	date sample was taken
<b>timesamp</b>	time sample was taken
<b>typeanal</b>	radioisotope/chemical sampling for
<b>result</b>	results of the urinalysis
<b>building</b>	building/area where employee worked
<b>sampcode</b>	sample taken for IH or HP purposes

Variables for Working File  
X10EXT

45 MB

Name	Description
<b>id</b>	identification number
<b>linkcode</b>	code indicating how record was linked
<b>birthdte</b>	date of birth
<b>servdte</b>	service date of employee
<b>dept</b>	department code employee assigned to
<b>sex</b>	sex of employee
<b>emptype</b>	employee status
<b>sampdate</b>	sample date
<b>fbyear</b>	film badge year
<b>fbqtr</b>	film badge quarter
<b>fbweek</b>	film badge week
<b>symbol1</b>	ORNL employee designation
<b>symbol2</b>	monitoring information
<b>symbol3</b>	additional monitoring information
<b>symbol4</b>	damaged/lost film badge codes
<b>skindose</b>	skin dose in mrem
<b>pendose</b>	penetrating dose in mrem
<b>sortkey</b>	sort key for employee's records

Variables for Working File  
X10WBC

918 KB

Name	Description
<b>id</b>	identification number
<b>linkcode</b>	code indicating how record was linked
<b>division</b>	division in which employee worked
<b>hparea</b>	health physics area (building)
<b>countdte</b>	count date
<b>reason</b>	reason for whole-body count
<b>type_</b>	body area of whole-body count
<b>serial_</b>	ORNL assigned serial number of run
<b>result</b>	result in terms of MPOB
<b>commnts_</b>	comments about the whole-body count

Variables for Working File  
X10URIN

5 MB

Name	Description
<b>id</b>	identification number
<b>linkcode</b>	code indicating how record was linked
<b>date_</b>	sample date
<b>isotope</b>	isotope monitored
<b>result</b>	result of sample in DPM
<b>result24</b>	result count for 24 hour voiding
<b>dept</b>	department code to which employee was assigned
<b>deptlink</b>	flag linking employee's department

Variables for Working File  
Y12EXT5080

70 MB

Name	Description
<b>id</b>	identification number
<b>linkcode</b>	code indicating how record was linked
<b>monyear</b>	year of monitoring
<b>quarter</b>	quarter of monitoring
<b>beta</b>	beta exposure
<b>gamma</b>	gamma exposure
<b>skindose</b>	skin dose in mrem
<b>pendose</b>	penetrating dose in mrem
<b>plntcode</b>	code indicating plant
<b>grpcode</b>	facility group code
<b>modcode</b>	film description code
<b>racknum</b>	rack number when processed
<b>traynum</b>	tray number when processed
<b>denplast</b>	film density behind plastic shield
<b>denalum</b>	film density behind aluminum shield
<b>dencad</b>	film density behind cadmium shield
<b>denopen</b>	film density behind open window
<b>neutron</b>	neutron dose
<b>dept</b>	department number for this individual
<b>yearmon</b>	4-digit year of monitoring
<b>qtrmon</b>	quarter of monitoring
<b>seqno</b>	multiple sequence number
<b>qtrinput</b>	quarter film was input
<b>damaged</b>	damaged film flag

Variables for Working File  
Y12EXT8184

5 MB

Name	Description
<b>id</b>	identification number
<b>linkcode</b>	code indicating how record was linked
<b>year</b>	year TLD was assigned to individual
<b>quarter</b>	quarter TLD was assigned
<b>tldpos1</b>	beta position (1) from TLD reader
<b>tldpos2</b>	gamma position (2) from TLD reader
<b>skindose</b>	skin dose in mrem
<b>pendose</b>	penetrating dose in mrem
<b>plntcode</b>	plant code
<b>grupcode</b>	group code
<b>damagflg</b>	flag indicating if TLD was damaged
<b>damagdte</b>	date if damaged
<b>damagcom</b>	damaged, lost, or estimated comment
<b>tldnumb</b>	TLD number
<b>dateread</b>	date TLD was read
<b>penlab</b>	lab report on penetrating dose
<b>dteassig</b>	date TLD was assigned
<b>dept</b>	department code for person at this time
<b>tempcode</b>	result code if damaged, lost, estimated
<b>exchange</b>	code indicating when TLD is exchanged

Variables for Working File  
Y12EXT8588

4.6 MB

Name	Description
<b>id</b>	identification number
<b>linkcode</b>	code indicating how record was linked
<b>year</b>	year TLD was assigned to individual
<b>quarter</b>	quarter TLD was assigned
<b>tldpos1</b>	beta position (1) from TLD reader
<b>tldpos2</b>	gamma position (2) from TLD reader
<b>skindose</b>	skin dose
<b>pendose</b>	penetrating dose
<b>plntcode</b>	plant code
<b>grupcode</b>	group code
<b>damagflg</b>	flag indicating if TLD was damaged
<b>damagdte</b>	date if damaged
<b>damagcom</b>	damaged, lost, or estimated comment
<b>tldnumb</b>	TLD number
<b>dateread</b>	date TLD was read
<b>penlab</b>	lab report on penetrating dose
<b>skinlab</b>	lab report on skin dose
<b>dteassig</b>	date TLD was assigned
<b>dept</b>	department code for person at this time
<b>damflmfg</b>	damaged film flag
<b>birthdat</b>	birth date
<b>exchange</b>	code indicating when TLD is exchanged

Variables for Working File  
Y12WBC

8 MB

Name	Description
<b>id</b>	identification number
<b>linkcode</b>	code indicating how record was linked
<b>runnumb</b>	unique identification number for run
<b>rundate</b>	date run was made
<b>cntrlrun</b>	run made for a control
<b>dept</b>	department code at run time
<b>birthyr</b>	year of birth of person
<b>sex</b>	sex of person
<b>weight</b>	weight of subject in pounds
<b>chest</b>	chest thickness of person
<b>surface</b>	surface contamination
<b>runtime</b>	length of run in minutes
<b>analysis</b>	analysis and target materials code
<b>material</b>	material type and additional information
<b>ratio</b>	front-to-back contamination ratio
<b>u235lung</b>	amount of U-235 in lungs
<b>thorlung</b>	amount of thorium in lungs
<b>cesium</b>	cesium 137 count
<b>potassium</b>	potassium count
<b>u238lung</b>	amount of U-238 in lungs
<b>rptmonth</b>	reported month
<b>current_</b>	current department code at time of run
<b>pre1971</b>	type analysis pre-1971
<b>preu235</b>	pre-1971 count of U-235
<b>actinium</b>	activity of actinium detected
<b>lead212</b>	activity of lead detected
<b>technet</b>	activity of technetium detected
<b>newdept</b>	new department code at time of run

Variables for Working File  
Y12URIN

49 MB

Name	Description
<b>id</b>	identification number
<b>linkcode</b>	code indicating how record was linked
<b>voiddate</b>	date of voiding
<b>seqnumb</b>	sequence number if multiple samples
<b>schgroup</b>	sample scheduling code
<b>pgmcode</b>	urinalysis sampling technique
<b>dept</b>	department code at time of sample
<b>platnumb</b>	number of plate counts taken
<b>volume</b>	urine volume in sample
<b>time</b>	time since last void
<b>useflag</b>	flag indicating if sample usable
<b>plate1</b>	plate 1 count
<b>plate1b</b>	plate 1 second count
<b>plate2</b>	plate 2 count
<b>plate2b</b>	plate 2 second count
<b>plate3</b>	plate 3 count
<b>plate3b</b>	plate 3 second count
<b>fluoro</b>	fluorometric sampling code
<b>typepart</b>	type of participation
<b>routine</b>	routine sample flag
<b>deptrept</b>	special departmental sample
<b>noavg</b>	averaged results flag
<b>change</b>	data change flag
<b>remove</b>	flag showing person removed from program
<b>dperm</b>	result in disintegrations per minute
<b>bground</b>	background count for plating
<b>calcflag</b>	flag if calculations made
<b>histflag</b>	result received in past 91 days

Variables for Working File  
LINDEFB

879 KB

Name	Description
<b>id</b>	identification number
<b>weekbeg</b>	beginning date for this monitoring record
<b>jobdesc</b>	job description
<b>beta</b>	beta reading
<b>gamma</b>	gamma reading
<b>total_</b>	total external dose
<b>commentf</b>	comments regarding exposure
<b>flag</b>	flag indicating employer
<b>pass</b>	pass number of linking software
<b>linkcode</b>	a code indicating how record was linking

Variables for Working File  
SRABSTRACTED

599 KB

Name	Description
<b>id</b>	identification number
<b>expos_yr</b>	year of exposure
<b>shal_dose</b>	shallow dose
<b>deep_dose</b>	deep dose (penetrating)
<b>trit_dose</b>	tritium dose
<b>neut_dose</b>	neutron dose
<b>acc_shallow</b>	accumulated shallow dose
<b>acc_deep</b>	accumulated deep dose
<b>acc_trit</b>	accumulated tritium dose
<b>acc_neut</b>	accumulated neutron dose
<b>stat</b>	coded comments field

Variables for Working File  
SRFAYERWETHER

13.6 MB

Name	Description
<b>id</b>	identification number
<b>linkcode</b>	code indicating how record was linked
<b>hpa</b>	Health Physics area
<b>hpd</b>	Health Physics department
<b>expyear</b>	year of exposure
<b>yo</b>	year open window
<b>ys</b>	year shielded
<b>yt</b>	year tritium window
<b>yn</b>	year neutron
<b>pow</b>	plant open window
<b>ps</b>	plant reading shielded
<b>pt</b>	plant reading tritium
<b>pn</b>	year reading neutron
<b>sp</b>	special codes/notes

Variables for Working File  
SRHPAREA1

6 MB

Name	Description
<b>id</b>	identification number
<b>linkflag</b>	flag indicating how record was linked
<b>use_flag</b>	usability of record flag
<b>roll</b>	code for assigned roll
<b>prefix</b>	prefix on payroll assignments
<b>birth_date</b>	date of birth
<b>plnt_serv_date</b>	date person began at SRS
<b>hp_area</b>	Health Physics monitoring area
<b>hp_dept</b>	Health Physics department
<b>supv_loc</b>	supervisor location
<b>emp_stat</b>	employee status
<b>date_iss</b>	date badge first issued
<b>acc_trit</b>	accumulated plant exposure - tritium
<b>acc_neut</b>	accumulated plant exposure - neutron
<b>acc_skin</b>	accumulated plant exposure - skin
<b>acc_gamma</b>	accumulated plant exposure - gamma
<b>no_assim</b>	number of assimilations
<b>body_burden1</b>	body burden received
<b>nuclide1</b>	nuclide assimilated
<b>body_org1</b>	body organ
<b>date_assim1</b>	date data were assimilated
⋮	
<b>body_burden10</b>	body burden received
<b>nuclide10</b>	nuclide assimilated
<b>body_org10</b>	body organ
<b>date_assim10</b>	date data were assimilated

Variables for Working File  
SRHPAREA2

51 MB

Name	Description
<b>id</b>	identification number
<b>linkflag</b>	flag indicating how record was linked
<b>use_flag</b>	usability of record flag
<b>noexpyr</b>	number of exposure years
<b>exp_year1</b>	year of exposure
<b>tritium1</b>	tritium exposure for the year
<b>neutron1</b>	neutron exposure for the year
<b>skin1</b>	skin exposure for the year
<b>gamma1</b>	gamma exposure for the year
⋮	
<b>exp_year50</b>	year of exposure
<b>tritium50</b>	tritium exposure for the year
<b>neutron50</b>	neutron exposure for the year
<b>skin50</b>	skin exposure for the year
<b>gamma50</b>	gamma exposure for the year

Variables for Working File  
MCW\_BRTHRADON

143 KB

Name	Description
<b>id</b>	identification number
<b>dept_job</b>	department job area
<b>result</b>	result from sample
<b>sdate</b>	sample date
<b>sign</b>	indicator of less than detectable

Variables for Working File  
MCW\_FB

1.4 MB

Name	Description
<b>id</b>	identification number
<b>yr</b>	year of film badge record
<b>gamma</b>	gamma reading
<b>beta</b>	beta reading
<b>totrecs</b>	total number of records
<b>okgamwks</b>	number of weeks that the gamma exposure records were OK
<b>monwks</b>	number of weeks monitored
<b>linkcode</b>	code indicating how record was linked

Variables for Working File  
MCW\_URIN

5.3 MB

Name	Description
<b>id</b>	identification number
<b>sampdate</b>	sample date of urinalysis
<b>deptjob</b>	department job area
<b>mguperl</b>	milligrams per liter
<b>samptype2</b>	sample type 2
<b>comments</b>	comments about the record
<b>linkcode</b>	code indicating how record was linked

Variables for Working File  
MCW\_X-RAY

1.8 MB

Name	Description
<b>id</b>	identification number
<b>box_num</b>	box number of x-ray
<b>numb_xrays</b>	number of x-rays taken for the person this date
<b>date</b>	date of x-ray(s)
<b>area</b>	area of x-ray
<b>age</b>	age of person at time of x-ray
<b>race</b>	race code for this person
<b>sex</b>	gender code for this person
<b>origin</b>	reason for x-ray
<b>diagnoses</b>	diagnoses from x-ray



# LANL (Pantex)

## PXFACW01 Data File Set

### Description

This data file set includes demographic, vital status, and exposure data for workers at the Pantex Plant located near Amarillo, Texas. The PXFACW01 data file set consists of five working files: PERSON, PXEXP, TERMED, INACTIVE, and ACTIVE.

The first file (PERSON) contains basic demographic data on 7,425 male and female workers employed either by the prime contractor or by a subcontractor. The hire and termination data cover the period from the start of plant operations in 1951 through late 1981, with some dates beyond. These data were abstracted by project staff primarily from personnel records microfilmed at the Pantex Plant. The cohort roster was assembled from employee record cards, employment information sheets, Social Security Administration (SSA) 941A forms, and health physics records. Vital status was assessed from a number of sources including the SSA, Pantex Plant records, the Texas Department of Motor Vehicles, and telephone tracing. Death certificates were obtained from state vital registrars. Death certificates were coded by trained nosologists according to the Eighth Revision of the International Classification of Diseases, Adapted for Use in the United States. The file was pulled from the Los Alamos National Laboratory Epidemiology Section's Pantex data base in October 1993 and reflects all demographic and death information present in the data base at that time.

The second file (PXEXP) contains exposure data on 209 male and female workers employed at the Pantex Plant. The file consists of each individual's identification number and the date his/her exposure reached or exceeded 1 rem. PXEXP was extracted from Pantex health physics records. The records of individuals having exposures were examined to determine when that individual's exposure reached or exceeded 1 rem.

The other three files (TERMED, INACTIVE, and ACTIVE) were received from the Pantex Plant in the early 1980s and have not been used or altered. The variable definitions for these files are limited to what was included in the sparse documentation from Pantex. Except for the addition of identification numbers and the CEDR-mandated data truncation, these data are included exactly as they were received from Pantex.

The third file (TERMED) consists of 209 records containing identification and radiation exposure data on terminated male and female workers at Pantex. The personnel exposure data are whole-body, internal, organ, skin, extremity, and other exposures by current year.

The fourth file (INACTIVE) consists of 705 records containing identification and radiation exposure data on inactive male and female workers or buildings at Pantex. The exposure data are whole-body, internal, organ, skin, extremity, and other exposures by current year.

The fifth file (ACTIVE) consists of 897 records containing identification and radiation exposure data on active male and female workers or buildings at Pantex. The exposure data are more detailed than those in the TERMED and INACTIVE files. The whole-body, internal, organ, skin, extremity, and other exposures are included for the current year, prior to the current year, and monthly for the current year. ❖

# LANL (Pantex)

PXFACW01 Data File Set

Number of Working Files: 5		
File Name	Number of Variables	Type of Data
PERSON	21	demographics, death data
PXEXP	2	exposure data
TERMED	15	exposure data
INACTIVE	15	exposure data
ACTIVE	32	exposure data

Variables for Working File PERSON 3 MB		Variables for Working File PXEXP 4 KB	
Name	Description	Name	Description
autopsy	was an autopsy performed (Y/N)	exp1rem	date cumulative exposure reached 1 rem
bdate	birth date	id	identification number
bstate	state of birth		
cvs	vital status as of 12/31/78		
dcity	city of death		
dcounty	county of death		
ddate	date of death		
drace	race listed on death certificate		
dsex	sex listed death certificate		
dstate	state of death		
educ	education		
fjt	first job title		
hiredate	date first hired		
icda8	ICD death code - 8th revision		
id	identification number		
race	race		
scname	subcontractor name		
sex	sex		
ssa78	vital status per SSA submission		
subemp	employed by prime or subcontractor (Y/N)		
termdate	worker's last termination date		

Variables for Working File  
**TERMED**

88 KB

Name	Description
<b>bdate</b>	birth date
<b>comments</b>	comments
<b>curyear</b>	current year
<b>departmt</b>	department number
<b>emptytype</b>	employee type (DOE or MMT&H)
<b>extexp</b>	extremities exposure
<b>hiredate</b>	date of hire
<b>id</b>	identification number
<b>intexp</b>	internal exposure
<b>organ</b>	organ code
<b>otherexp</b>	other exposure
<b>sex</b>	sex
<b>skinexp</b>	skin exposure
<b>termdate</b>	termination date
<b>wbdyexp</b>	whole-body exposure

Variables for Working File  
**INACTIVE**

25 KB

Name	Description
<b>bdate</b>	birth date
<b>comments</b>	comments
<b>curyear</b>	current year (the year data is valid)
<b>departmt</b>	department number
<b>emptytype</b>	employee type (DOE or MMT&H)
<b>extexp</b>	extremities exposure
<b>hiredate</b>	date of hire
<b>id</b>	identification number
<b>intexp</b>	internal exposure
<b>organ</b>	organ code
<b>otherexp</b>	other exposure
<b>sex</b>	sex
<b>skinexp</b>	skin exposure
<b>termdate</b>	termination date
<b>wbdyexp</b>	whole-body exposure

Variables for Working File  
**ACTIVE**

1 MB

Name	Description
<b>bdate</b>	birth date
<b>curyear</b>	current year
<b>divocode</b>	division code
<b>dummy</b>	dummy
<b>emptytype</b>	employee type (DOE or MMT&H)
<b>hiredate</b>	date hired
<b>id</b>	identification number
<b>inits</b>	initials
<b>ltintexp</b>	lifetime internal exposure
<b>ltwbexp</b>	lifetime whole-body exposure
<b>monactiv</b>	monthly activity flag
<b>monextr</b>	monthly extremities exposure
<b>monint</b>	monthly internal exposure
<b>monlimit</b>	monthly limit flag
<b>monmeth</b>	monthly method
<b>monnucl</b>	nuclide to which employee was exposed
<b>monorgan</b>	monthly organ code
<b>monother</b>	monthly other exposure
<b>monskin</b>	monthly skin exposure
<b>monunit</b>	monthly unit
<b>mwbgamma</b>	monthly whole-body gamma exposure
<b>mwbneut</b>	monthly whole-body neutron exposure
<b>mwbtotal</b>	monthly whole-body total exposure

<b>orgcode</b>	organ code
<b>prexexp</b>	extremities exposure prior to curyear
<b>printexp</b>	internal exposure prior to curyear
<b>prskiexp</b>	skin exposure prior to curyear
<b>prwbexp</b>	prior whole-body exposure
<b>quawbexp</b>	quarterly whole-body exposure
<b>sex</b>	sex
<b>termdate</b>	termination date
<b>wbcytota</b>	whole-body exposure, current year total



# LANL (Rocky Flats)

## RFFACW02 Data File Set

### Description

This data file set consists of six working files prepared for epidemiologic studies of workers at the Rocky Flats Plant (RFP).

The RFFACW02 data file set consists of six working files that were generated by the Epidemiology Section at the Los Alamos National Laboratory (LANL) for mortality studies of workers employed at RFP. Data were obtained in various formats and media from RFP departments and other agencies. Demographic data were collected from two primary sources of records provided by the Personnel Department at RFP. Supplemental data were obtained from RFP health physics records. Death information was abstracted from death certificates obtained from various states. External ionizing radiation exposure and plutonium bioassay data were provided by the Health Physics Department at RFP. The external ionizing radiation data from hard-copy records through 1978 were computerized by the Epidemiology Section at LANL.

The six files in the RFFACW02 data file set are segregated by type of data: demographic, external ionizing radiation exposure, and plutonium-239 bioassay results. Data pertaining to an individual that appear in one or more files may be linked by the individual identification number assigned to each worker.

The first working file (PERSON) contains demographic information, including race, sex, birth date, limited work history information, and death information, such as cause of death, date of death, and state of death, for 9,537 males and females hired between 1951 and February 1979. The file includes 1,563 females, 7,973 males, and 1 with unknown sex. Race was determined for 99% of the workers. Death information was last obtained in 1992 from the National Death Index (NDI). Mortality data were available from the NDI for the period 1979 through 1990. Earlier death information was obtained from the Social

Security Administration (SSA) and other sources, including the Colorado Department of Motor Vehicles and active tracing. There are 1,423 deaths identified in this working file. Cause-of-death information (ICDA8) is not available for six deaths. This file also includes dosimetry data from 1981 that has been superseded by the data in the other four files of this working data file set.

The second working file (BIOASSAY) contains results of urine bioassay measurements for gross alpha, uranium, enriched uranium, depleted uranium, plutonium-239, and americium-241 through 1989. The file contains 300,261 records for contractor personnel and hires after 1979. Data include the date of the sample, type of analysis, activity of each isotope, and estimated body burdens for plutonium-239 and for americium-241. These data were not edited by LANL.

The third working file (RFEXTRAD) contains external ionizing radiation exposure data. There are 62,375 records for 9,015 workers for the years 1951 through 1978. The variables include year of monitoring and annual whole-body penetrating dose (in millirems) incurred while working at RFP. These data have been edited extensively with the help of the health physics staff at RFP.

The fourth file (RFLTA) contains values recorded at RFP for "lifetime accumulated other" external ionizing radiation exposure received from a facility other than RFP. There are 9,015 readings for 9,015 individuals. These data were coded from hard-copy records provided by RFP and are available for 1965 through 1978. These data have been edited with the help of the staff at RFP.

# LANL (Rocky Flats)

## RFFACW02 Data File Set

The fifth file (RFTLD) contains 360,388 records of badge readings for external radiation for the last quarter of 1976 through 1989. In addition to records for RFP workers, readings are present for contractor employees and workers hired at RFP after 1979. These data were provided in computerized form by RFP in 1990 and have not been edited.

The sixth file (RFWB) contains americium and plutonium whole-body counts. The file contains 79,761 records for contract employees and workers hired after 1979. These data were never used by the LANL Epidemiology Section in any analyses, and no documentation exists at LANL on the units or meaning of data in this file. ❖

Number of Working Files: 6		
File Name	Number of Variables	Type of Data
PERSON	38	demographic, exposure data
BIOASSAY	9	exposure data
RFEXTRAD	6	exposure data
RFLTA	2	lifetime accumulation
RFTLD	11	exposure data
RFWB	8	exposure data

### Variables for Working File PERSON

1 MB

Name	Description
autopsy	whether an autopsy was performed
bdate	date of birth
bstate	place where worker was born
bt	blank total
comment	ORISE comment
cumext	cumulative external dose 1981
cvs	CVS date unknown
cvs79	vital status as of the study end date (12/31/79)
ddate	date of death
dla	date last alive
dmv	Department of Motor Vehicles (DMV) results 1983
dmv89	DMV results 1989
dmv92	DMV results 1992
drace	race as recorded on death certificate
dsex	sex as recorded on death certificate
dstate	state of death
educ	education
firstpu	first positive sample plutonium-239
hiredate	date of first hire
icda8	cause of death - ICDA 8th revision
icdaca	ICDA cancer
mpbbpu	percent MPBB plutonium-239 1981
mt	measured total

ndi85	NDI submission 1985
ndi92	death identified from NDI 1992
id	identification number
ot	other total
race	race
sd82	status date SSA 1982 submission
sent82	sent to SSA in 1982
sex	sex
source82	death information source SSA 1982
ssa79	SSA submission 1979
ssa82	SSA submission 1982
ssa843	SSA submission 1984
ssa861	SSA submission 1986
termdate	date of last termination prior to 1980
trace85	tracing results 1985

Variables for Working File  
**BIOASSAY**  
18 MB

Name	Description
<b>analyte</b>	type of sample assay
<b>dpm</b>	activity
<b>elapsed</b>	elapsed days
<b>error</b>	counting error
<b>nocalc</b>	valid sample
<b>id</b>	identification number
<b>restart</b>	restart
<b>sampdate</b>	date assigned to sample by Rocky Flats
<b>systemic</b>	fractional MPBB

Variables for Working File  
**RFEXTRAD**  
33 MB

Name	Description
<b>accdow</b>	running total of penetrating dose RFP
<b>expyear</b>	year of exposure
<b>lanlsum</b>	running total of penetrating dose LANL
<b>neutflag</b>	neutron component
<b>id</b>	identification number
<b>ytotal</b>	annual whole-body penetrating dose

Variables for Working File  
**RFLTA**  
270 KB

Name	Description
<b>accother</b>	lifetime accumulated other
<b>id</b>	identification number

Variables for Working File  
**RFTLD**  
25 MB

Name	Description
<b>bkg1</b>	background 1
<b>bkg2</b>	background 2
<b>forearm</b>	external rad. dose to forearm
<b>gamma</b>	gamma reading
<b>hand</b>	external rad. dose to the hand
<b>neutron</b>	neutron reading
<b>id</b>	identification number
<b>pen</b>	penetrating dose
<b>sampdate</b>	date of badge reading
<b>skin</b>	external rad. dose to skin
<b>timecode</b>	schedule for badge reading

Variables for Working File

RFWB

7 MB

Name	Description
<b>amburd</b>	americium body counts
<b>id</b>	identification number
<b>puburd</b>	plutonium body count
<b>sdate</b>	date count was taken