

(B)

Special Exposure Cohort Petition
under the Energy Employees Occupational
Illness Compensation Act

U.S. Department of Health and Human Services
Centers for Disease Control and Prevention
National Institute for Occupational Safety and Health

OMB Number: 0920-0639 Expires: 05/31/2007
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Special Exposure Cohort Petition — Form B

Use of this form and disclosure of Social Security Number are voluntary. Failure to use this form or disclose this number will not result in the denial of any right, benefit, or privilege to which you may be entitled.

General Instructions on Completing this Form (complete instructions are available in a separate packet):

Except for signatures, please PRINT all information clearly and neatly on the form.

Please read each of Parts A — G in this form and complete the parts appropriate to you. If there is more than one petitioner, then each petitioner should complete those sections of parts A — C of the form that apply to them. Additional copies of the first two pages of this form are provided at the end of the form for this purpose. A maximum of three petitioners is allowed.

If you need more space to provide additional information, use the continuation page provided at the end of the form and attach the completed continuation page(s) to Form B.

If you have questions about the use of this form, please call the following NIOSH toll-free phone number and request to speak to someone in the Office of Compensation Analysis and Support about an SEC petition: **1-800-356-4674**.

If you are:	<input type="checkbox"/> A Labor Organization,	Start at D on Page 3
	<input type="checkbox"/> An Energy Employee (current or former),	Start at C on Page 2
	<input checked="" type="checkbox"/> A Survivor (of a former Energy Employee),	Start at B on Page 2
	<input type="checkbox"/> A Representative (of a current or former Energy Employee),	Start at A on Page 1

A Representative Information — Complete Section A if you are authorized by an Employee or Survivor(s) to petition on behalf of a class.

A.1 Are you a contact person for an organization? Yes (Go to A.2) No (Go to A.3)

A.2 Organization Information:

Name of Organization _____

Position of Contact Person _____

A.3 Name of Petition Representative:

Mr./Mrs./Ms. First Name Middle Initial Last Name

A.4 Address:

Street Apt # P.O. Box

City State Zip Code

A.5 Telephone Number: () -

A.6 Email Address: _____

A.7 Check the box at left to indicate you have attached to the back of this form written authorization to petition by the survivor(s) or employee(s) indicated in Parts B or C of this form. An authorization

If you are representing a Survivor, go to Part B; if you are representing an Employee, go to Part C.

Name or Social Security Number of First Petitioner:

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D Labor Organization Information — Complete Section D ONLY if you are a labor organization.

D.1 Labor Organization Information:

Name of Organization

Position of Contact Person

D.2 Name of Petition Representative:

D.3 Address of Petition Representative:

Street

Apt #

P.O. Box

City

State

Zip Code

D.4 Telephone Number of Petition Representative: (____) _____ - _____

D.5 Email Address of Petition Representative: _____

D.6 Period during which labor organization represented employees covered by this petition
(please attach documentation): Start _____ End _____

D.7 Identity of other labor organizations that may represent or have represented this class of
employees (if known):

Go to Part E.

Name or Social Security Number of First Petitioner:

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E Proposed Definition of Employee Class Covered by Petition — Complete Section E.

E.1 Name of DOE or AWE Facility: Y-12 National Security Complex

E.2 Locations at the Facility relevant to this petition:
All locations at the Y-12 National Security Complex

E.3 List job titles and/or job duties of employees included in the class. In addition, you can list by name any individuals other than petitioners identified on this form who you believe should be included in this class:

All employees that conducted cleaning work at the Y-12 National Security Complex

E.4 Employment Dates relevant to this petition:

Start	_____	End	_____
Start	_____	End	_____
Start	_____	End	_____

E.5 Is the petition based on one or more unmonitored, unrecorded, or inadequately monitored or recorded exposure incidents? Yes No

If yes, provide the date(s) of the incident(s) and a complete description (attach additional pages as necessary):

Go to Part F.

Name or Social Security Number of First Petitioner:

Special Exposure Cohort Petition — Form B

F Basis for Proposing that Records and Information are Inadequate for Individual Dose —
Complete Section F.

Complete at least one of the following entries in this section by checking the appropriate box and providing the required information related to the selection. You are not required to complete more than one entry.

F.1 I/We have attached either documents or statements provided by affidavit that indicate that radiation exposures and radiation doses potentially incurred by members of the proposed class, that relate to this petition, were not monitored, either through personal monitoring or through area monitoring.

(Attach documents and/or affidavits to the back of the petition form.)

Describe as completely as possible, to the extent it might be unclear, how the attached documentation and/or affidavit(s) indicate that potential radiation exposures were not monitored.

The attached documents, including the Y-12 site profile from the NIOSH website clearly show the lack of monitoring data from 1943-1947.

F.2 I/We have attached either documents or statements provided by affidavit that indicate that radiation monitoring records for members of the proposed class have been lost, falsified, or destroyed; or that there is no information regarding monitoring, source, source term, or process from the site where the employees worked.

(Attach documents and/or affidavits to the back of the petition form.)

Describe as completely as possible, to the extent it might be unclear, how the attached documentation and/or affidavit(s) indicate that radiation monitoring records for members of the proposed class have been lost, altered illegally, or destroyed.

Attached documents are self explanatory

Part F is continued on the following page.

Name or Social Security Number of First Petitioner: _____

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F.3 I/We have attached a report from a health physicist or other individual with expertise in radiation dose reconstruction documenting the limitations of existing DOE or AWE records on radiation exposures at the facility, as relevant to the petition. The report specifies the basis for believing these documented limitations might prevent the completion of dose reconstructions for members of the class under 42 CFR Part 82 and related NIOSH technical implementation guidelines.

(Attach report to the back of the petition form.)

F.4 I/We have attached a scientific or technical report, issued by a government agency of the Executive Branch of Government or the General Accounting Office, the Nuclear Regulatory Commission, or the Defense Nuclear Facilities Safety Board, or published in a peer-reviewed journal, that identifies dosimetry and related information that are unavailable (due to either a lack of monitoring or the destruction or loss of records) for estimating the radiation doses of employees covered by the petition.

(Attach report to the back of the petition form.)

Go to Part G.

G Signature of Person(s) Submitting this Petition — Complete Section G.

All Petitioners must sign the petition. A maximum of three persons may sign the petition.

_____	_____
Signature	Date
_____	_____
Signature	Date

Notice: Any person who knowingly makes any false statement, misrepresentation, concealment of fact or any other act of fraud to obtain compensation as provided under EEOICPA or who knowingly accepts compensation to which that person is not entitled is subject to civil or administrative remedies as well as felony criminal prosecution and may, under appropriate criminal provisions, be punished by a fine or imprisonment or both. I affirm that the information provided on this form is accurate and true.

Send this form to:
SEC Petition
Office of Compensation Analysis and Support
NIOSH
4676 Columbia Parkway, MS-C-47
Cincinnati, OH 45226

If there are additional petitioners, they must complete the Appendix Forms for additional petitioners. The Appendix forms are located at the end of this document.

Name or Social Security Number of First Petitioner:

Public Burden Statement

Public reporting burden for this collection of information is estimated to average 300 minutes per response, including time for reviewing instructions, gathering the information needed, and completing the form. If you have any comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, send them to CDC Reports Clearance Officer, 1600 Clifton Road, MS-E-11, Atlanta GA, 30333; ATTN:PRA 0920-0639. Do not send the completed petition form to this address. Completed petitions are to be submitted to NIOSH at the address provided in these instructions. Persons are not required to respond to the information collected on this form unless it displays a currently valid OMB number.

Privacy Act Advisement

In accordance with the Privacy Act of 1974, as amended (5 U.S.C. § 552a), you are hereby notified of the following:

The Energy Employees Occupational Illness Compensation Program Act (42 U.S.C. §§ 7384-7385) (EEOICPA) authorizes the President to designate additional classes of employees to be included in the Special Exposure Cohort (SEC). EEOICPA authorizes HHS to implement its responsibilities with the assistance of the National Institute for Occupational Safety (NIOSH), an Institute of the Centers for Disease Control and Prevention. Information obtained by NIOSH in connection with petitions for including additional classes of employees in the SEC will be used to evaluate the petition and report findings to the Advisory Board on Radiation and Worker Health and HHS.

Records containing identifiable information become part of an existing NIOSH system of records under the Privacy Act, 09-20-147 "Occupational Health Epidemiological Studies and EEOICPA Program Records. HHS/CDC/NIOSH." These records are treated in a confidential manner, unless otherwise compelled by law. Disclosures that NIOSH may need to make for the processing of your petition or other purposes are listed below.

NIOSH may need to disclose personal identifying information to: (a) the Department of Energy, other federal agencies, other government or private entities and to private sector employers to permit these entities to retrieve records required by NIOSH; (b) identified witnesses as designated by NIOSH so that these individuals can provide information to assist with the evaluation of SEC petitions; (c) contractors assisting NIOSH; (d) collaborating researchers, under certain limited circumstances to conduct further investigations; (e) Federal, state and local agencies for law enforcement purposes; and (f) a Member of Congress or a Congressional staff member in response to a verified inquiry.

This notice applies to all forms and informational requests that you may receive from NIOSH in connection with the evaluation of an SEC petition.

Use of the NIOSH petition forms (A and B) is voluntary but your provision of information required by these forms is mandatory for the consideration of a petition, as specified under 42 CFR Part 83. Petitions that fail to provide required information may not be considered by HHS.

Name or Social Security Number of First Petitioner: _____

NIOSH SITE PROFILE DOCUMENT

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6.1 INTRODUCTION

The Y-12 Plant, now the Y-12 National Security Complex, was first conceived in the fall of 1942 by engineers of the Manhattan Engineering District (MED) of the U.S. Army Corps of Engineers, and the construction of the first building was completed in 1943 (Wilcox 2001). The Tennessee Eastman Corporation (TEC) operated Y-12 between June 1943 and May 1947. During this period, the operations at Y-12 primarily involved the use of the electromagnetic separation process to enrich uranium in ^{235}U , with the enriched product being shipped to Los Alamos for production of atomic weapons. Until the latter part of 1945, Y-12 converted UO_3 to UCl_4 which was subsequently enriched in ^{235}U by the electromagnetic separation process using two calutron stages (termed "alpha" and "beta"). In late 1945, Y-12 discontinued the use of the alpha calutron stage, and processes at Y-12 were changed to receive UF_6 from the Oak Ridge Gaseous Diffusion Plant (ORGDP) or so-called K-25 Plant. The UF_6 was then further enriched at Y-12 by the beta calutrons and shipped to Los Alamos. In these early days of Y-12, TEC relied entirely on facility monitoring to measure and control the radiation exposure to workers. The nature of the work at Y-12 in these early years resulted in internal occupational exposure being more important than occupational external exposure.

In May 1947, management of Y-12 was assigned to the Carbide & Chemicals Company, a division of the Union Carbide & Carbon Corporation, and emphasis was directed away from enrichment to the fabrication of nuclear weapon parts. Numerous changes have occurred over the years in the fabrication procedures, but the general features have remained the same. Typically, enriched uranium (EU) was received at Y-12 in the form of UF_6 , converted to UF_4 , reduced to a metal, and then fabricated into weapon parts. These fabrication processes involved casting of metal, rolling and forming the metal, machining the metal, and recycling of the EU salvage. The fabrication of weapon parts was expanded over the years to include other radioactive and non-radioactive materials. In addition to facility monitoring to measure and control the radiation exposure to workers, an external dosimetry program was started in 1948 to monitor individual personnel working in the Assay Laboratories, Radiographic Shop, Spectrographic Shop, and the "Metal" Machine Shops. This program which monitored less than 25% of the total number of Y-12 employees was continued through the criticality accident at Y-12 in 1958. As a result of the 1958 criticality accident, a program was instituted in 1961 to individually monitor all Y-12 workers for external radiation exposure using a dosimeter system that was an integral part of the worker's identification badge and contained components for both routine and accident dosimetry. Thus, Y-12 has used both facility monitoring and individual worker monitoring to measure and control radiation exposures to radiation workers since 1948. The percentages of Y-12 workers monitored for external radiation exposure from the start of the external dosimetry program in 1948 through the switch to monitoring nearly all workers in 1961 are shown in Figure 6.1-1. The external monitoring data for Y-12 workers from 1948 to 1950 are not readily available by Social Security Number (SSN) and are not being supplied by Y-12 in response to Energy Employees Occupational Illness Compensation Program Act (EEOICPA) requests (Souleyrette 2003).

There are numerous Y-12 records concerning facility monitoring, safety evaluations, investigations, etc. However, it is time consuming to locate and evaluate these records for all Y-12 facilities and processes since 1943. Evaluations of the extensive scope of facility, process, and worker information relevant to an individual worker's potential dose, many years or even decades after employment, are difficult or even impossible in some instances. Records of radiation dose to individual workers from personnel dosimeters worn by the worker and co-workers are available for the employees with the highest potential for external radiation exposure from 1950 to 1961 and for all workers from 1961 to the present. Dose from these dosimeters is recorded at the time of measurement, reviewed routinely by Y-12 operations and safety staff for compliance with radiation control limits, and made available routinely to workers. The National Institute for Occupational Safety and Health (NIOSH) External

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body. Some knowledge of the likely state of equilibrium is therefore necessary in order to translate observed activities into dose.

The maximum permissible lung burden (MPLB) of ^{232}Th (corresponding to 15 rem y^{-1} to the lung) varied markedly with the ^{228}Th to ^{232}Th ratio. For full equilibrium (ratio = 1) the MPLB was calculated to be 2.9 nCi of ^{232}Th . For a ^{228}Th : ^{232}Th ratio of 0.1, the lung burden was 12 nCi (West, 1965, p. 22). For a ratio of 0.8, an MPLB of 3.2 nCi is indicated. For this ratio, with a ^{228}Ra to ^{232}Th ratio of 0.6, an MDA of 0.2 lung burdens, or 0.6 nCi is indicated (West, 1965, p. 26). In mass units, this is 5.5 mg.

It was reported in 1965 that thorium at Y-12 was processed less than one year after purification by the supplier, and consequently had only about 10% as much ^{228}Ra as ^{224}Ra (West, 1965, p. 18). This means that the maximum dose conversion factor per mg of ^{232}Th would be less than that for ^{232}Th in full equilibrium with its progeny. However, unless specific information is available with the claimants' data, the dose reconstructor will have to make claimant-favorable assumptions. The thorium sensitivity varied due to the dependence of this technique on the ratios of Th-232 and Ra-228 to the daughter radionuclide being measured. Data interpretation was based on a careful evaluation of the work histories. In the absence of sufficient data to determine Th-228:Th-232 ratios and state of equilibrium, the claimant favorable assumption is to assume full equilibrium.

Neptunium

At the time the *in vivo* system was put into routine service in 1961, the reported detection limit for ^{237}Np without daughter radiation was 2.7 nCi (Cofield, 1961). For ^{237}Np in full equilibrium with ^{239}Pa , the detection limit was reported as 0.255 nCi (Cofield, 1961).

5.3.2.3 Chest Counting for Other Radionuclides

At the time the *in vivo* system was put into routine service in 1961, the reported detection limit for ^{60}Co was 0.66 nCi. For ^{96}Zr in transient equilibrium with ^{96}Nb , the reported detection limit was 1 nCi. Although Bremsstrahlung counting may have been done for ^{99}Tc , no information is available regarding the sensitivity of the technique.

5.4 MISSED DOSE

There are two eras of operations at Y-12 for which sufficient monitoring information may not be available. From 1943 to 1947, limited or no monitoring was performed. No data has been found for this time period. The primary site activities for this time period were uranium enrichment by the Calutron process. From 1948 to 1950, fluorometric analyses of urine and blood were conducted as part of general medical surveillance to prevent kidney damage from exposure to soluble uranium compounds; these data cannot be retrieved at this time. Major site activities for the 1948 to 1950 period (and through 1992) included the manufacture of nuclear weapons components.

5.4.1 Data for Missed Dose Determination – 1943-1947

This section is in preparation. Please note that this era consisted primarily of enrichment activities using the Calutron process. It is anticipated that reconstruction activities will have to be based on air sampling results.

5.4.2 Data for Missed Dose Determination – 1948-1951

The primary site activities from 1948 to 1992 were associated with the manufacture of nuclear weapons components. The information in Table 5-6 is based on a review of bioassay data reported

uranium and thorium at Y-12. Annual internal doses from uranium, previously calculated from quantitative urinalysis and whole body counting results, as described in Crawford-Brown et al., (1990) and Hazards Assessment Group (1989), were added to estimates of lung doses from thorium burdens and compared to the 0.1 cSv/year cutoff to determine annual internal exposure category.

Workers at TEC had a high potential for internal contamination because of the process performed at the facility. However, personal monitoring data were not available from TEC records because no bioassay or whole body counting programs were established when it was in operation. An investigation into the job titles of the 2,837 TEC white male workers who later went on to work at either Y-12 or ORNL revealed that the majority remained in jobs with similar internal exposure potentials, and 1,147 (40%) were classified as internally exposed for at least one year during employment at either Y-12 or ORNL.

TABLE 5
Monitoring Data Information on the Study Cohort

	Males		Females	
	White	Nonwhite	White	Nonwhite
Number monitored for external or internal radiation (% of race/gender group monitored)	33,088 (48)	2,392 (56)	7,809 (26)	1,161 (35)
Number monitored for external dose (% of race/gender group monitored)	31,587 (46)	2,354 (56)	7,607 (25)	1,154 (35)
Number of workers by facility (% of number in race/gender group)				
< 1 cSv (%)	24,661 (78)	2,109 (90)	7,305 (96)	1,119 (97)
> (or =) 1 to < 5 cSv (%)	5,565 (18)	201 (8)	272 (4)	35 (3)
> (or =) 5 cSv (%)	1,361 (4)	44 (2)	30 (0)	0 (0)
Total external dose (cSv)	37,619 (93)	1,220 (3)	1,537 (4)	168 (0)
Total external dose (cSv) by facility (% of total dose in race/gender group)				
ORNL	23,885 (64)	789 (65)	787 (51)	75 (45)
Y-12	12,537 (33)	377 (65)	682 (45)	80 (48)
K-25	1,197 (3)	54 (4)	68 (4)	13 (7)
Total number of annual doses by facility (% of these annual doses not available)				
ORNL (1943 - 1984)	146,229 (3)	9,287 (4)	33,007 (6)	3,232 (6)
Y-12 (1948 - 1960)	51,854 (86)	1,500 (97)	7,843 (96)	606 (98)
(1961 - 1984)	121,069 (2)	7,056 (4)	14,162 (4)	2,475 (4)

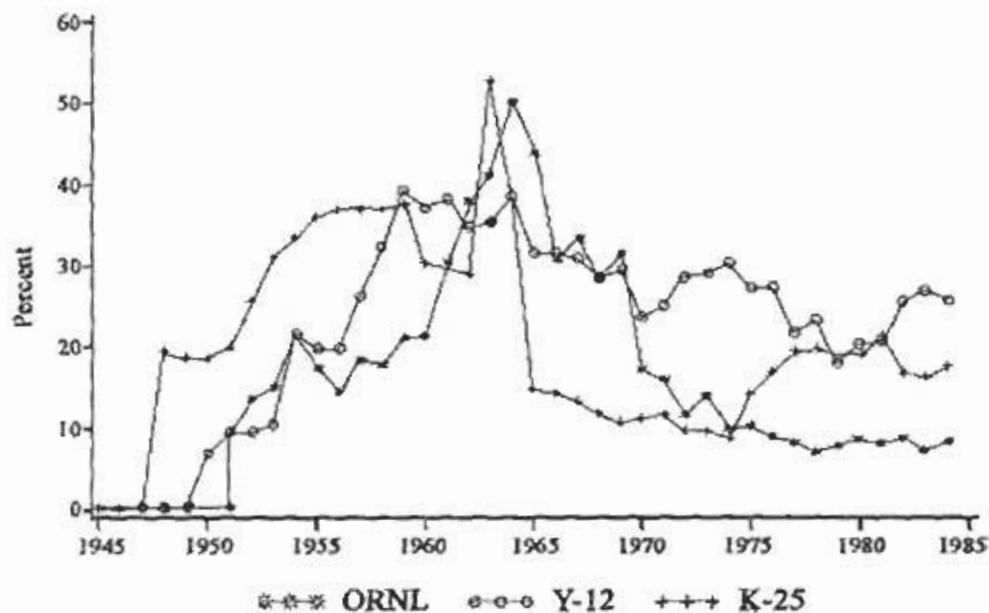


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DISCUSSION

Results of validation checks indicate that the study cohort included the vast majority of workers hired at Oak Ridge nuclear facilities before January 1, 1983. Because the study period extended through December 31, 1984, there was a long period of follow-up for examining mortality experience of workers hired during early years of plant operation when radiation protection standards were less strict. Data checks and corrections made throughout the process of computerizing and linking data and setting up the ORISE database have resulted in demographic, work history, and radiation monitoring data having a high degree of precision. The quality of the data was confirmed by the results of a random sample data verification, which involved checking against original hardcopy and other source records currently on file in the Oak Ridge nuclear facilities. Vital status is likely underascertained for females. Internal monitoring data were complete enough to classify each year of employment as "exposed", "not exposed", or "not monitored", although "not monitored" had a different meaning before internal monitoring programs were established (1951) than afterwards. During early years of plant operation external monitoring data may not be complete for those workers considered to be at low risk for radiation exposure. However, the external doses upon which the study is based have been compiled with a high level of precision from the original monitoring records. Of the total of 40,550 cSv external dose recorded for the study cohort, 63 percent was recorded by ORNL, 34 percent by Y-12, three percent by K-25, and none by TEC, which was in operation only during WWII when monitoring programs were just beginning. In addition, 93 percent of the recorded external dose was assigned to white males, and 91 percent to white males who had ever

been employed at ORNL or Y-12. As a result of the investigation into monitoring policies in effect at the various facilities over the 42 years covered by the study, it was determined that doses recorded at ORNL before 1957 and unmonitored years at Y-12 before 1961 may have resulted in an underestimation of external radiation doses to workers at these facilities. Therefore, estimates are being made for unrecorded doses and adjustments are being made to doses from the years indicated to produce a second set of external dose analysis files. Details on these adjusted doses will appear in a supplement to this report. Dose-response analyses will be conducted using cumulative external doses based first on actual



Multiple Myeloma (MM) and Exposure to Ionizing Radiation

Summary: Studies conducted at the Los Alamos National Laboratory and other nuclear facilities, as well as those exposed to radiation from the atomic bomb suggest an increased likelihood of developing multiple myeloma for those who have been exposed to ionizing radiation. These findings are consistent with the determination of the National Research Council's BEIR V committee that multiple myeloma has been associated with exposure to ionizing radiation. Multiple myeloma is a "specified" cancer under the EEOICPA. Historically, multiple myeloma incidence and mortality in Los Alamos County fall in the middle of New Mexico counties while Rio Arriba County is among counties with the highest rates in the state. Incidence means new cases of cancer, while mortality means deaths due to cancer.

What is Multiple Myeloma?

Multiple myeloma is a type of cancer that affects certain white blood cells called plasma cells. Plasma cells and other white blood cells are part of the immune system, which helps protect the body from infection and disease. When cancer involves plasma cells, the body keeps producing more and more of these cells. The unneeded plasma cells -- all abnormal and all exactly alike -- are called myeloma cells. Myeloma cancer cells tend to collect in the bone marrow and in the hard, outer part of bones. Sometimes they collect in only one bone and form a single mass, or tumor. In most cases, however, the myeloma cells collect in many bones, often forming many tumors. When this happens, the disease is called multiple myeloma. Although multiple myeloma affects the bones, they begin in cells of the immune system. These cancers are different from bone cancer, which actually begins in cells that form the hard, outer part of the bone. (National Cancer Institute)

Findings of Human Health Research Studies

Human health research studies compare the patterns of disease among groups of people with different amounts of exposure to a suspected risk factor. Below are results reported from such studies of multiple myeloma among people exposed to ionizing radiation.

All of these studies found increases and possible increases in multiple myeloma (MM) among certain groups of exposed workers. Statistically significant is a term used to mean that the connection between the health outcome and the exposure was strong enough that it was unlikely to be due to chance. The research included incidence studies, which look at new cases of cancer. These can track health more quickly and accurately than mortality studies of deaths due to cancer. Adding to the strength of the findings is that increasing rates of MM were observed with higher doses in some studies.

Studies of Los Alamos National Laboratory (LANL) Workers

Research conducted of LANL workers provides the most direct evidence about possible relationships between a health problem and workplace exposures at LANL.

Study of Four DOE Sites: LANL contributed 37 cases of multiple myeloma to a case-control study at four DOE sites. All together, the rate of death due to MM increased with increasing whole body dose of radiation received between age 40 and 50.¹



Studies of Other Nuclear Workers in the United States

The next most relevant evidence comes from studies of workers in similar occupations with the same types of exposures. Listed below are studies that looked at multiple myeloma and workplace exposures among nuclear workers in other parts of the United States.

Hanford, Washington: A possible increase in MM deaths was observed in 35,000 males employed between 1943 and 1972, and then followed through 1972.⁽⁵¹⁾ In later studies, this finding has depended upon the assumptions used in the analysis.^(18, 48, 52) Under certain assumptions, there are increasing rates of death due to MM with increasing doses of external radiation.^{49, 52, 2, 3 **}

Mallinckrodt, St. Louis, Missouri: A possible increase in deaths from MM was observed in a study of 2,514 males who were employed between 1942 and 1966, and then followed through 1993.²

Oak Ridge Y-12, Tennessee: The disease category of "other lymphatic cancer," which includes MM (ICD 203), showed a possible increase in deaths in a study of 8,116 workers who were employed between 1947 and 1974, and then followed through 1990.³⁴

Studies of Other Nuclear Workers Worldwide

Below are studies of nuclear workers outside of the United States that looked at multiple myeloma in connection with radiation exposures.

Sellafield, England: A possible increase in deaths was observed due to MM in a study of 5,203 plutonium workers who were employed between 1947 and 1975, and then followed through 1992. A possible increase was seen in incidence between 1971 and 1986 in plutonium workers.⁵ In a study of 14,327 workers who were monitored for external radiation during this time period, there were increasing rates of death due to MM with increasing doses of external radiation.^{4 **} The researchers who conducted the study wrote: "This may represent a true radiation effect."

3 Nuclear Workforces in England: Increasing rates of death due to MM were found with increasing time since first being monitored for plutonium in a study of 12,498 workers.^{29 **}

Registry of Nuclear Workers in the U.K.: Increasing rates of death due to MM were found with increasing doses of external radiation in a study of 95,000 workers.^{3 **}

Studies of Other Ionizing Radiation Exposures

Studies among other groups of people who were not nuclear workers can also be significant as evidence of possible increases in multiple myeloma among those who have been exposed to ionizing radiation. Most other research has been conducted of people exposed to atomic bombs.

Atomic Bomb Survivors: Increasing deaths due to multiple myeloma with increasing doses of radiation in a study of 86,572 A-bomb survivors.^{3, 4 **}

Other Research and Policy Findings

The National Research Council advises the U.S. government on scientific matters. Their Committee on Biological Effects of Exposure to Ionizing Radiations (BEIR) V reviewed sensitivity of parts of the body to radiation. Their findings are based mostly on studies of cancer among atomic bomb survivors, as well as on

some of the available information on the biology of the body, animal studies, and other evidence. The greatest risk is at high exposure levels.

According to the National Research Council's BEIR V committee, "[t]he incidence of multiple myeloma has been observed to be elevated after widespread irradiation of the bone marrow in the majority of populations studied to date."⁹

Is Multiple Myeloma a "Specified" Cancer Under the Energy Employees Occupational Illness Compensation Program Act (EEOICPA)?

- **Yes.** Multiple myeloma is a "specified" cancer under the EEOICPA consideration of Special Exposure Cohorts

Policy makers have identified certain types of cancer among energy employees at nuclear facilities, including those employed at Los Alamos National Laboratory, as being potentially related to occupational exposures under the EEOICPA.

What Are Other Risk Factors for Multiple Myeloma?

In considering the risks of occupational exposure to ionizing radiation leading to multiple myeloma, it is important to understand other risk factors. Below is a list of other suspected risk factors for multiple myeloma. Children and brothers and sisters of patients who have this disease have a slightly increased risk.

Hazardous chemicals. Farmers and petroleum workers exposed to certain chemicals also seem to have a higher-than-average chance of getting multiple myeloma.

These factors may add to any risk due to workplace exposure to ionizing radiation. Most multiple myeloma patients are between 50 and 70 years old. This disease affects blacks more often than whites and men more often than women. Smoking has not been found to be related to multiple myeloma.

Rates of Multiple Myeloma in Exposed Counties

Los Alamos County

There have been moderate rates of multiple myeloma reported in Los Alamos County for both cancer incidence and mortality. Los Alamos County:

Ranked 19th in incidence of multiple myeloma and
19th in mortality among the 33 counties in New Mexico from 1970 to 1996.³³
In recent years there has been about one case per year in the county.^{13,14}

Rio Arriba County

There have been very high rates of multiple myeloma reported in Rio Arriba County for both cancer incidence and mortality. Rio Arriba County:

Ranked 5th highest in incidence of multiple myeloma and
Highest in mortality among the 33 counties in New Mexico from 1970 to 1996.³³



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- ¹ Wing S, Richardson D, Wolf S, Mihlan G, Crawford-Brown DJ, Wood J. A case control study of multiple myeloma at four nuclear facilities. *Annals of Epidemiology* 2000;10(3):144-153.
- ² Gilbert ES, Marks S. An analysis of the mortality of workers in a nuclear facility. *Radiation Research* 1979;79:122-148.
- ³ Tolley HD, Marks S, Buchanan JA, Gilbert ES. A further update of the analysis of mortality of workers in a nuclear facility. *Radiation Research* 1983;95:211-213.
- ⁴ Preston DL, Kusumi S, Tomonaga M, Izumi S, Ron E, Kuramoto A, et al. Cancer incidence in atomic bomb survivors. Part III: Leukemia, lymphoma and multiple myeloma, 1950-1987. *Radiation Research* 1994;137:S68-S97.
- ⁵ Kendall GM, Muirhead CR, MacGibbon BH, O'Hagan JA, Conquest AJ, Goodill AA, et al. Mortality and occupational exposure to radiation: first analysis of the National Registry for Radiation Workers. *British Medical Journal* 1992;304:220-225.
- ⁶ Pierce DA, Shimizu Y, Preston DL, Vaeth M, Mabuchi K. Studies of the mortality of atomic bomb survivors. Report 12, part 1. Cancer: 1950-1980. *Radiation Research* 1996;146:1-27.
- ⁹ Committee on the Biological Effects of Ionizing Radiation. Health Effects of Exposure to Low Levels of Ionizing Radiation; BEIR V. Washington, D.C.: National Academy Press; 1990.
- ¹³ New Mexico Department of Health. Steering Committee Data; Appendix E, Table N. Cancer Cases; Los Alamos Residents 1970-1990; Site by Year of Diagnosis. Los Alamos Cancer Rate Study. Santa Fe, NM, 1992;1.
- ¹⁴ Athas WF, Key CR, Sewell M, Voorhees R. Cancer Trends in Los Alamos County, 1973-1997. In: Fuller Lodge; July 14, 1999; Los Alamos, NM; 1999. p. 27.
- ²⁴ Loomis DP, Wolf SH. Mortality of workers at a nuclear materials production plant at Oak Ridge, Tennessee, 1947-1990. *American Journal of Industrial Medicine* 1996;29:131-141.
- ²⁹ Carpenter LM, Higgins CD, Douglas AJ, Maconochie NES, Omar RZ, Fraser P, Beral V, Smith PG. Cancer mortality in relation to monitoring for radionuclide exposure in three UK nuclear industry workforces. *British Journal of Cancer* 1998;78:1224-1232.
- ³³ Athas WF. Cancer in New Mexico 1970-1996: Changing Patterns and Emerging Trends. Santa Fe, NM: New Mexico Department of Health, 1998.
- ⁴⁹ Gilbert ES, Omohundro E, Buchanan JA, Holter NA. Mortality of workers at the Hanford Site: 1945-1986. *Health Physics* 1993;64(6):577-590.
- ⁵² Gilbert ES, Petersen GR, Buchanan JA. Mortality of workers at the Hanford Site: 1945-1981. *Health Physics* 1989;56(1):11-25.

* Findings were statistically significant (strong evidence)

+ Evidence of a dose-response relationship (strongest evidence)

Oak Ridge Mortality Study

SUMMARY (From ORAU Fact Sheet FY97-28 , July 8, 1997)

Investigators (see previous page for affiliations):

E L Frome, D L Cragle, J P Watkins, S B Wing, C M Shy, W G Tankersley, C M West

Funding Source:

Funding was provided by the U.S. Department of Energy (DOE) with management and scientific oversight from the National Institute for Occupational Safety and Health (NIOSH).

Background:

This report is the second phase of a study of the mortality of workers employed between 1943 and 1985 at the federal nuclear plants in Oak Ridge, Tenn. The first phase was limited to white males who were employed only during the World War II era when radiation monitoring programs were being developed. Workers omitted from earlier studies are included in this report. The mortality rates of workers at the Oak Ridge plants are compared with each other and with U. S. rates. Dose-response analysis for those individuals who were potentially exposed to external radiation are presented.

This study was initiated out of the need to develop statistical methods for combining mortality data from multiple nuclear facilities. Historically, there were major differences between facilities in terms of when they opened, the kind and frequency of monitoring for radiation exposures, etc. The data from the different facilities were combined to fully utilize all available information concerning the potential adverse health effects related to working at these facilities.

Study Population:

An analysis of mortality rates was conducted among 106,020 persons (27,982 deaths) employed for at least 30 days at the federal nuclear plants in Oak Ridge, Tenn., between 1943 and 1985. They are the X-10, K-25, Y-12, and TEC facilities; the TEC facility is the Y-12 plant before 1948.

Major Findings:

I. Overall Results

1. Overall death rate was in close agreement with national death rates.
2. The cancer death rate (for all cancer causes as a group) was in close agreement with national death rates.
3. The death rates for diseases of the digestive system (both malignant and nonmalignant) and diseases of the circulatory system were substantially lower than the national rates.
4. Among white males, substantial elevations in lung cancer deaths (18% increase), nonmalignant respiratory disease deaths (12% increase) and deaths caused by external sources such as automobile accidents, homicide, drowning, etc. (5% increase) were observed.
5. Among white males, substantial decreases in deaths were observed in 13 other disease-specific categories for this group.
6. Among non-white males, a substantial elevation in deaths due to cancer of the large intestine (73% increase, based on 23 deaths) was observed.

7. Among white and non-white females, no elevations were observed and many decreases were noted.

II. Differences Between Facilities

1. For white males, substantial differences in death rates were observed for the different facilities in the study (X-10, TEC, Y-12, and K-25).
2. Higher death rates were observed among those who worked only at TEC or K-25 and among those who worked at more than one facility. These death rates were higher than death rates among workers who worked only at X-10 or Y-12. This overall difference was primarily due to noncancer causes of death.
3. Analysis of selected cancer causes for white males showed large differences among the facilities for:
 - lung cancer (increase for all facilities except X-10).
 - leukemia (increase for X-10, and multiple facility workers; decrease for Y-12).
 - other lymphatic cancer (increase for Y-12; decrease for X-10).

III. Dose-Response Analysis

A smaller group of 28,347 white males employed at X-10 or Y-12 who were at risk for exposure to external penetrating radiation was examined to determine if there was a relationship between rates of death from selected causes and level of radiation dose. Observations were:

1. A 20% fewer deaths overall, compared with national death rates.
2. A 13% fewer deaths from cancer compared with national death rates.
3. An association between external radiation dose and death from cancer (all cancers taken together).
4. Among the specific cancer categories analyzed:
 - - There was a positive association between lung cancer and external radiation dose that was dependent on two deaths in a high dose group. Information on cigarette smoking for this cohort is not available for analysis and residual confounding by cigarette smoking patterns cannot be ruled out. Such confounding could bias dose response estimates in either direction. There was no evidence for an association between diseases of the circulatory system or nonmalignant respiratory disease and external radiation.
 - -There was no evidence for an association between leukemia deaths and external radiation. Leukemia death rates for X-10 workers were higher than U. S. rates and other similar Oak Ridge workers.
 - -Prostate cancer rates were about two times higher for workers with external radiation doses greater than zero when compared to workers with zero dose. There was , however, no evidence for a smoothly increasing dose-response for prostate cancer.

IV. Conclusions:

1. All cause mortality rates were similar to national rates, which is unusual in a study of an occupational group. Death rates in occupational groups are usually lower because national rates include people who cannot work because of health problems. One possible explanation is the large proportion of male workers who were hired at young ages during the war years and who worked only for a short amount of time. These workers may have been transient workers not eligible for the draft because of poor health, or they may have been subjected to more hazardous working conditions because of the war effort.
2. Monthly paid workers had substantially lower mortality than weekly or hourly workers.
3. Mortality rates were higher for workers employed for less than one year.
4. Mortality differences between workforces at these facilities may be due to differences in exposure to internal and/or external radiation; other non-radiation exposures; or residual confounding due to other socioeconomic factors.

5. Dose-response results for all cancers derived from this study are compatible with those found in other studies.

4. [Back To ORMS Home Page](#)

5. Last Modified 7Jul97 FromEL@ornl.gov(touches: 2889)

Health Effects

Please read the [Disclaimer](#).

A former chairman of the International Committee on Radiation Protection put it this way: "An overwhelming amount of data have been accumulated that show there is no safe level of exposure and there is no dose of radiation so low that the risk of a malignancy is zero. Therefore, the question is not: what is a safe level? The question is: how great is the risk? Or, how great may a particular radiation risk be before it exceeds the expected benefits, such as those from medical radiography or nuclear power?" - Dr. Karl Z. Morgan, Bulletin of the Atomic Scientists, Sept., 1978.

"People and animals can be internally contaminated by breathing radioactive particles in the air, by eating contaminated food, or by drinking contaminated water or milk." - MDPH, "Radiological Emergency Information for Farmers and Food Processors".

"Although a ventilation system is needed to keep sheltered livestock healthy, it could allow radioactive material to enter the building." - MDPH, "Radiological Emergency Information for Farmers and Food Processors".

Radiation accelerates the natural aging process and causes such "mild" genetic mutations as allergies, asthma, juvenile diabetes, hypertension, slight muscular or bone defects and reduced resistance to disease. These problems are passed on from generation to generation. - Herman Muller, "Radiation and Heredity", American Journal of Public Health, 1964.

Children and infants are up to 40 times more sensitive to radiation than adults because of their rapidly dividing cells and immature immune systems. - MacMahon, Journal of the American Medical Association.

"Nearly 9,000 excess deaths each year may be attributed to routine and accidental emissions from the nation's operating nuclear reactors." - Dr. Jay Gould, director of a survey by the Council on Economic Priorities of counties around 58 U.S. commercial reactors.

"When radiation passes through the human body, four principal events can occur:

- * - the radiation passes through or near the cell without producing any damage;
- * - the radiation kills the cell or renders it incapable of cell division;
- * - the radiation damages the cell but the damage is repaired adequately; or
- * - the cell nucleus... is damaged but the cell survives and multiplies in its perturbative form over a period of years (5 to 70 years) and forms a clone of cells that eventually is diagnosed as a malignancy." - Dr. Karl Z. Morgan, "Cancer and Low Level Ionizing Radiation." Bulletin of the Atomic Scientists, p. 30-41, Sept. 1978

No level of radiation is safe; i.e., ANY exposure can increase an individual's chance of developing a health disorder or sustaining genetic damage. (Biological Effects of Ionizing Radiation II, 1972)

Virtually every type of cancer - blood, breast, lung, digestive system, and others - can be initiated by radiation exposure. Also, heart disease, aplastic anemia, cataracts, shortened life-span, and weakening of the immune system may result. A woman's risk of developing cancer after exposure to radiation is almost twice the risk faced by a man. (BEIR III, National Academy of Sciences, 1980)

From 1970 to 1981, 50 US commercial reactors have released 40 million curies of radioactive isotopes. -

Brookhaven National Laboratories

"Releases of radioactive noble gas is the principal source of population exposure from routine operation of BWR's."

- Dr. Karl Z. Morgan, "Ways of Reducing Radiation Exposure in a Future Nuclear Power Economy", 1976

Legal limits for radiation exposure have steadily declined; from 52 rem/yr. in 1920, to 36 rem/yr. ~1935, to 15.6 rem/yr. to ICRP's current standard of 5 rem/yr. (.5 rem/person/yr. - max. and .17 rem/person/yr. - avg. for the general public) established in 1956. (K. Z. Morgan, "Cancer and Low Level Ionizing Radiation." Bulletin of the Atomic Scientists, p. 30-41, Sept. 1978) (Morgan is credited with founding the science of health physics, headed the health physics section of the Oak Ridge National Laboratory in Tennessee for 29 years, and at different times served as chairman of both the ICRP and the NCRP.)

The 5 rem/yr standard applies to approximately two million radiation workers; in the medical profession (39%), nuclear power & weapons industry (19%), and various industries (21%). (U.S. EPA, "Occupational Exposure to Ionizing Radiation in U.S.", June 1979)

The ICRP has recommended continuing the 5 rem/yr. standard and in certain circumstances permitting workers to receive even higher doses, e.g., increasing the bone marrow exposure from the current 5 rems to 42 rems. (ICRP Publication No. 26. New York; Pergamon Press, 1977)

A DOE study of 30,000 workers at Hanford shows that deaths from multiple myeloma and pancreatic cancers were clearly correlated with exposure to radiation at levels averaging less than 2 rems per year - or only 40 percent of the 5-rem per year NCRP occupational standard. This study also found that the number of cancers observed was 10 to 30 times greater than expected from exposure to the 5 rem/yr. occupational standard. (T. F. Mancuso, A. M. Stewart, and G. Kneale. "Hanford 1: Radiation Exposure of Hanford Workers Dying from Cancer and Other Causes." Health Physics, 33, pp. 369-384, 1977. also, Science News "DOE Questioned on Health Effects Research" 113:7 p. 103, Feb. 18, 1978) (Mancuso, fired by DOE in 1975 for releasing the results of his studies, was chief of industrial hygiene in Ohio for 17 years, and his research was recognized for excellence by the National Cancer Institute in 1961.) (Edward Radford, the chairman of the government's own top scientific advisory group on radiation, testified before the House Subcommittee on Health and Environment in 1978 in support of Mancuso's work and agreed with his conclusion that the government's radiation limits are 10 times too high and "long overdue for change".)

DOE contract researchers found that workers at the Oak Ridge National Laboratory in Tennessee have a 49% excess death rate from leukemia when compared with the general public; and workers who fabricate nuclear warhead parts at the Oak Ridge Y-12 weapons plant have "excess deaths for cancer of the lung, brain, and central nervous system, Hodgkins disease and other lymphatic tissue, and brain tumor deaths nearly five times higher than expected for the general public." (Epidemiology Project Summary." prepared by Oak Ridge Associated Universities and the University of North Carolina for the US DOE, Office of Health and Environmental Research, Washington, DC, May, 1984)

A study by Steve Wing of the University of North Carolina, which examined death records of 8,318 atomic workers at the Oak Ridge National Laboratory from 1943 to 1972 found their death rate from leukemia was 63 to 123% higher than the general population. (JAMA 3/20/91)

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Case No. VFA-0625, 28 DOE ¶ 80,132

December 8, 2000

DECISION AND ORDER

OF THE DEPARTMENT OF ENERGY

Appeal

Name of Petitioner: Linda G. Shown

Date of Filing: November 3, 2000

Case Number: VFA-0625

On November 3, 2000, Linda Shown, Esq. (Shown) filed an Appeal from a determination issued to her in response to a request for documents concerning Lester Mays that Shown submitted under the Freedom of Information Act (FOIA), 5 U.S.C. § 552, as implemented by the Department of Energy (DOE) in 10 C.F.R. Part 1004. The determination was issued on October 19, 2000, by the Oak Ridge Operations Office (Oak Ridge). This Appeal, if granted, would require that Oak Ridge perform an additional search.

I. Background

was employed by Tennessee Eastman (then the civilian contractor at the Oak Ridge site) from Memorandum of Telephone Conversation between Amy Rothrock, Authorizing Official, Oak Ridge, and Valerie Vance Adeyeye, Office of Hearings and Appeals (OHA) Staff Attorney (November 28, 2000). worked at what is now the Y-12 plant in Oak Ridge. *Id.* According to Shown, when left Tennessee Eastman, he brought home a container filled with a thick white substance that he had scraped from machinery during his employment at the plant. Letter from Shown to Director, OHA (November 3, 2000) (Appeal). After death his widow called "someone in authority" to remove the substance from her home, and two "government workers" dressed in "full protective gear and with protective equipment" went to the residence and removed the container. *Id.* Mays' widow requested (but never received) either a report on the contents of the container or a receipt for the container. Appeal at 2.

On August 30, 2000, Shown filed a FOIA request with Oak Ridge on behalf of son for "a copy of the complete file pertaining to his father . . . including but not limited to medical records, work related records, and any other information regarding Letter from Shown to Oak Ridge (August 30, 2000). The request did not, however, mention the alleged removal of the substance from the home. Oak Ridge searched DOE historical files and found responsive personnel records that included some medical records. Memorandum of Telephone Conversation between Amy Rothrock, Oak Ridge, and Valerie Vance Adeyeye, OHA Staff Attorney (November 28, 2000). Oak Ridge released those records to Shown along with the determination on October 19, 2000. Letter from Oak Ridge to Shown (October 19, 2000). Shown then filed this Appeal, contending that

additional records pertaining to 'must exist' because of the circumstances surrounding the

removal of the mysterious substance from the home in the 1960s. Appeal at 2. family believes that his death was caused by radiation exposure during his employment at Oak Ridge, and they allege that Oak Ridge should have responsive records in its possession relating to what they believe was his radiation exposure. *Id.*

II. Analysis

A. ADEQUACY OF SEARCH

In responding to a request for information filed under the FOIA, it is well established that an agency must "conduct a search reasonably calculated to uncover all relevant documents." *Truitt v. United States Dep't of State*, 897 F.2d 540, 542 (D.C. Cir. 1990). "The standard of reasonableness which we apply to agency search procedures does not require absolute exhaustion of the files; instead, it requires a search reasonably calculated to uncover the sought materials." *Miller v. United States Dep't of State*, 779 F.2d 1378, 1384-85 (8th Cir. 1985); accord *Truitt*, 897 F.2d at 542. We have not hesitated to remand a case where it is evident that the search conducted was in fact inadequate. See, e.g., *Glen Milner*, 17 DOE ¶ 80,102 (1988).

We contacted Oak Ridge to ascertain the scope of the search, particularly in light of Shown's description of the removal of the container. Oak Ridge informed us that they were not aware of the container incident that allegedly occurred in the 1960s. Memorandum of Telephone Conversation between Amy Rothrock, Oak Ridge, and Valerie Vance Adeyeye, DOE Staff Attorney (November 28, 2000). As a result, Oak Ridge had performed its search using Social Security number, and limited its search to DOE historical files. *Id.* If an accident occurred in the 1940s, the Health Physics Department would have generated a memo about the incident. *Id.* Oak Ridge also searched for any Health Physics files regarding and found no responsive material. *Id.* Oak Ridge did not search the Y-12 facility because the plant did not begin keeping detailed records on employees until the 1950s, over five years after left Tennessee Eastman. *Id.* The Y-12 facility retained only a personnel card on each World War II-era employee, unless the individual was sick or involved in a hazardous material spill. *Id.* As for the allegation of radiation exposure, radiation exposure records were not initiated until the mid-1950s, after had left the facility. *Id.* We therefore find that Oak Ridge conducted a search reasonably calculated to uncover the responsive material, i.e., records relating to a World War II-era employee. Accordingly, this Appeal should be denied. (1)

It Is Therefore Ordered That:

(1) The Freedom of Information Act Appeal filed by Linda Shown on November 3, 2000, OHA Case Number VFA-0625, is hereby denied.

(2) This is a final order of the Department of Energy from which any aggrieved party may seek judicial review pursuant to 5 U.S.C. § 552(a)(4)(B). Judicial review may be sought in the district in which the requester resides or has a principal place of business, or in which the agency records are situated, or in the District of Columbia.

George B. Breznay

Director

Office of Hearings and Appeals

Date: December 8, 2000

(1) Because the request did not contain any information about the alleged removal of the canister from the residence, Oak Ridge was unaware of the incident. However, after we notified Oak Ridge of Shown's allegation, Oak Ridge agreed to initiate a search of Y-12 files for information relating to the 1960s incident. Memorandum of Telephone Conversation between Amy Rothrock, Oak Ridge, and Valerie Vance Adeyeye, OHA Staff Attorney (November 28, 2000). At Oak Ridge's request, Shown provided additional information about the incident to the FOIA office in order to facilitate the new search. Letter from Shown to OHA (November 29, 2000). That search is ongoing.



**ORAU Team
Dose Reconstruction
Project for NIOSH**

NIOSH Tracking Number:

January 11, 2005

Dear

On behalf of the Oak Ridge Associated Universities (ORAU) Team, I would like to update you on the status of the claim you filed under the Energy Employees Occupational Illness Compensation Program Act (EEOICPA). This update concerns changes you may notice in the Activity Report that you will be receiving shortly in the mail from the National Institute for Occupational Safety and Health (NIOSH).

The above changes refer to a letter we sent to you on 04/12/2004, to let you know we were ready to proceed with your dose reconstruction. The letter was sent for two reasons: (1) to make sure you had no objections to the potential health physicists that might be working on your case, and (2) we believed we had sufficient information to start your dose reconstruction. When we evaluated your case, we found that one or more of the following issues needs to be resolved before we can adequately complete your dose reconstruction:

- 1) The Site Profile for a site at which you worked needs to be completed
- 2) Co-worker data needs to be developed
- 3) A site or sites at which you worked requires additional data capture
- 4) Temporary technical "holds" need to be resolved

(Further explanation and specific examples of each of these issues are shown on the reverse side of this letter.)

We apologize and deeply regret any confusion this may have caused. Please be assured that as soon as the information needed to complete your dose reconstruction becomes available, we will move your case forward as quickly as possible. We are making every effort to ensure that cases awaiting dose reconstruction are handled promptly, consistently, and fairly. In addition, please note that no response or action is required of you at this time. It is our responsibility to obtain the additional information that is needed to complete the dose reconstruction for your case.

If you have additional questions regarding this information or the status of your case, please feel free to contact us by using the ORAU toll-free number at 1-800-322-0111. You can also obtain the status of your case by visiting the NIOSH website at <http://ww2a.cdc.gov/ocas/status.html>.

Sincerely yours,

Richard E. Toohy, Ph.D., CHP
Project Director
ORAU Team
Dose Reconstruction Project for NIOSH

Additional Information

The following issues were listed on the front of this letter as potentially causing delays in the completion of your dose reconstruction. Here, each issue is explained in more detail.

The Site Profile for a site at which you worked needs to be completed.

A 'site profile' is a technical document that contains information about exposure conditions at a site. It typically includes data on the types and amounts of radioactive material processed there, descriptions of process buildings, estimates of environmental and work exposures to radiation, etc. In some cases, these documents (or parts of these documents) are not finished, and we do not have the technical information we need to process cases for workers who worked at that particular site. Your case might be on hold because we are awaiting the finished report.

Co-worker data needs to be developed.

In many cases, we do not have specific monitoring data for every individual that worked at a site. In some cases, this is because the data cannot be located. In other cases, the sites used representative monitoring for a worker group to assign individual doses. Whatever the reason, it is acceptable in certain cases to take data from workers who WERE monitored, and apply it to workers who did the same jobs who were NOT monitored. This is called co-worker data. In many cases we are trying to develop co-worker data sets so that we can proceed with dose reconstruction.

A site or sites require additional data capture.

In some cases, we know that data exist but we have not yet located the records. In these cases, we perform what we call 'data capture' trips to find and record (or 'capture') this data. Because we would always prefer to do a dose reconstruction with data for each individual when it is available, we are attempting to find and 'capture' the data that exists for a site or sites where the energy employee worked. Only a set number of such trips can be accomplished at any given time, and so it is possible we are awaiting scheduling and completion of these data capture trips to complete your case.

Temporary technical 'holds' need to be resolved.

In many cases, technical issues arise that delay the completion of a dose reconstruction. For instance, a particular process at a site might not be well-documented. This keeps us from completing cases for workers from that site who worked with that process. Medical x-rays required for employment at a site might not be well-defined in terms of how much exposure they gave the employee, and this could cause a case or group of cases to be put on 'hold.' Neutron exposures or low-energy photon exposures might be poorly defined and hinder accurate dose reconstructions. There are many types of technical 'holds' that impact our ability to complete cases, and as we work to develop solutions to these issues it might temporarily delay the processing of your particular case as well.

We hope this information has been helpful. Remember, no response or action is required of you at this time. If you have any questions, or would like to know exactly what is delaying completion of your dose reconstruction, please call the ORAU Team at 1-800-322-0111.



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SEC Petition
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SEC Tracking Number:

National Institute for Occupational
Safety and Health
Robert A. Taft Laboratories
4678 Columbia Parkway
Cincinnati, OH 45226-1998
Phone: 513-533-6825
Fax: 513-533-6826

April 19, 2005

Dear Ms. Davis:

This letter is to summarize the telephone conversation in which we discussed the results of the Special Exposure Cohort (SEC) qualification process with you and provided consultation on specific topics in your SEC submission. As you know from the submission receipt letter sent to you previously, the NIOSH SEC Tracking Number for your submission is:

SEC

As required in the SEC Rule (42 C.F.R. §§ 83.7 through 83.9) and outlined in the "Instructions for Completing Special Exposure Cohort Petition – Form B," certain elements are required to qualify a submission for evaluation. During the SEC qualification phase, each submission is carefully examined to verify that it meets the requirements of the Rule. We found that there were questions regarding your submission that we needed to discuss with you for clarification, or that your submission did not meet all the requirements of the Rule.

A list of the issues we discussed with you is attached. For each of these items we have included remarks to summarize our conversation and to provide guidance intended to help you provide a submission that could qualify for evaluation.

NIOSH will complete the qualification process after you have submitted any necessary revisions, informed us that you do not wish to make recommended changes, or after the deadlines indicated below have expired. If your submission qualifies for evaluation, we will begin the evaluation process by notifying you and the Advisory Board on Radiation and Worker Health (the Board) that your submission has qualified for evaluation as a petition and by providing you a summary of the evaluation process. At that time, we will also post a summary of your petition on the OCAS web site (<http://www.cdc.gov/niosh/ocas>).

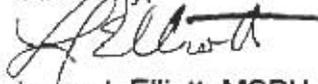
Please respond to this letter by addressing the requests for information or changes to your submission as outlined in the attached document, which summarizes our conversation. Please note that there may be various time frames for responses on selected items. These time limits are established by the Rule (42 C.F.R § 83.11). You

may also respond with corrections to your responses, if you believe such corrections are necessary. Please be sure to include your NIOSH SEC Tracking Number on all correspondence. Any correspondence should be addressed to:

SEC:
Office of Compensation Analysis and Support
NIOSH MS-C-47
4676 Columbia Parkway
Cincinnati, OH 45226

During this period, if you have any questions regarding your submission, please feel free to contact OCAS toll-free at 1-800-35-NIOSH (1-800-356-4674), directly at 513-533-6800, or by email at ocas@cdc.gov. You may also contact our contractor toll-free at 1-800-322-0111. Additional information about OCAS and the SEC procedure can be found on the OCAS web site at <http://www.cdc.gov/niosh/ocas>.

Sincerely,



Larry J. Elliott, MSPH, CIH
Director

Office of Compensation Analysis and Support

Attachment

Qualification Phone Call Discussion and Agreements

A qualification phone call was conducted by interviewer Pat K. and Health Physicist Kenny F. on April 7, 2005 with SEC applicant A detailed review of this phone call follows. The questions/statements made by the interviewer or Health Physicist are stated first and the responses of the interviewer and of the interviewee are stated in italics.

- 1 **Clarification.** On page 2 of Special Exposure Cohort - Form B (hereafter referred to as Form B), Item C.7a entitled "Employee Number" is blank.

You agreed that we could insert your mother's identification number, as found in claim files, into the blank space adjacent to Item C.7a of your submitted Form B. You have 10 days from the date on this letter to document any disagreement with this action or statement by writing to the address given on the second page of this letter.

2. **Clarification.** On page 2 of Form B, Item C.7b indicates a Y-12 employment period of through

You indicated that though you understood that your mother's employment period would not fulfill the 250 day health endangerment requirement, you still wanted to proceed with your submission indicating the to timeframe.

From our discussion you understood that a separate SEC submission covering all Y-12 Plant workers in the timeframe had been received by NIOSH and is currently being evaluated. You have 10 days from the date on this letter to document any disagreement with this action or statement by writing to the address given on the second page of this letter.

3. **Clarification.** On page 4 of Form B, the DOE facility name for Items E.1 and E.2 is indicated as being the "Y-12 National Security Complex."

You agreed that we could insert "Y-12 Plant" in your SEC submission where it is currently listed as "Y-12 National Security Complex." You have 10 days from the date on this letter to document any disagreement with this action or statement by writing to the address given on the second page of this letter.

4. **Clarification.** On page 4 of Form B, Item E.3 indicates a worker class of "All employees that conducted cleaning work at the Y-12 National Security Complex."

You agreed that the revised worker class should read: All Laboratory Equipment Cleaners that worked at the Y-12 Plant between and You have 10 days from the date on this letter to document any

disagreement with this action or statement by writing to the address given on the second page of this letter.

5. **Clarification.** On Page 4 of Form B, in Item E.4, you have indicated that _____ is the employment period relevant to this submission. This correlates to the time when the Tennessee Eastman Corporation was the production contractor onsite (note the Employer Name given in Item C.7c where Tennessee Eastman Corporation is given as the employer).

You agreed that your intended worker class would include the timeframe that the Tennessee Eastman Corporation was the operating contractor at the Y-12 Plant. You have 10 days from the date on this letter to document any disagreement with this action or statement by writing to the address given on the second page of this letter.

6. **Deficiency.** On page 4 of Form B, neither of the checkboxes on line E.5 is checked indicating if this submission is based on unmonitored, unrecorded, or inadequately monitored or recorded exposure incidents.

You agreed that it was your intent to check the "No" box in section E.5 indicating that your SEC submission was not based upon an exposure incident. You have 10 days from the date on this letter to document any disagreement with this action or statement by writing to the address given on the second page of this letter.

7. **Deficiency.** On page 5 of Form B, Item F.2 is checked indicating that monitoring records "have been lost, falsified, or destroyed; or that there is no information regarding monitoring, source, source term, or process from the site where the employees worked." The phrase "Attached documents are self explanatory" is written in the comments field for Item F.2. Your submission includes excerpts from "several NIOSH Technical Basis Documents" and other supporting documentation which you cited in Item F.1. You also checked Item F.4 indicating that you had enclosed a scientific or technical report.

You agreed that Item F.1 could serve as the basis for your submission and that we could disregard your originally submitted information for Item F.2. You have 10 days from the date on this letter to document any disagreement with this action or statement by writing to the address given on the second page of this letter.

8. **Clarification.** This appears to be an oversight, but page 7 of the submission has not been signed.

You agreed that we could insert your social security number at the bottom of the page indicating your agreement with the information given in the "Public Burden Statement" and "Privacy Act Advisement." (Your social security number provided on Page 2 of Form B was confirmed in the

phone call.) You have 10 days from the date on this letter to document any disagreement with this action or statement by writing to the address given on the second page of this letter.

- 9. PROPOSED CLASS DEFINITION.** Based on the previously discussed information you agreed that the proposed class definition for this submission should include: All Tennessee Eastman Corporation employees that conducted laboratory equipment cleaning work at the Y-12 Plant from 1943 through 1947.

You have 10 days from the date on this letter to document any disagreement with this action or statement by writing to the address given on the second page of this letter.