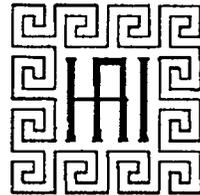


Y-12 MERCURY TASK FORCE FILES:
A GUIDE TO RECORD SERIES OF THE DEPARTMENT OF ENERGY
AND ITS CONTRACTORS

DRAFT

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TABLE OF CONTENTS

INTRODUCTION	1
HISTORY OF OAK RIDGE	2
THE ESTABLISHMENT OF THE Y-12 MERCURY TASK FORCE FILES	4
METHODOLOGY	7
PRODUCTION AND USE OF THE GUIDE	8
LIMITATIONS OF THE GUIDE	9
ARRANGEMENT OF THE GUIDE	9
SERIES DESCRIPTIONS	14
I. FINDING AIDS & REFERENCE REPORTS	14
II. PROGRESS REPORTS	17
III. MERCURY ACCOUNTABILITY RECORDS	27
IV. HEALTH AND ENVIRONMENTAL RECORDS	33
APPENDIX A	41
INDEX TO RECORD SERIES	50

Y-12 MERCURY TASK FORCE FILES: A GUIDE TO RECORD SERIES OF THE DEPARTMENT OF ENERGY AND ITS CONTRACTORS

INTRODUCTION

Overview

The purpose of this guide is to describe each of the series of records identified in the documents of the Y-12 Mercury Task Force Files that pertain to the use of mercury in the separation and enrichment of lithium isotopes at the Department of Energy's (DOE) Y-12 Plant in Oak Ridge, Tennessee. History Associates Incorporated (HAI) prepared this guide as part of DOE's Epidemiologic Records Inventory Project, which seeks to verify and conduct inventories of epidemiologic and health-related records at various DOE and DOE contractor sites.

This introduction briefly describes the Epidemiologic Records Inventory Project and HAI's role in the project. Specific attention will be given to the history of the DOE-Oak Ridge Reservation, the development of the Y-12 Plant, and the use of mercury in the production of nuclear weapons during the 1950s and early 1960s. This introduction provides background information on the Y-12 Mercury Task Force Files, an assembly of documents resulting from the 1983 investigation of the Mercury Task Force into the effects of mercury toxicity upon workplace hygiene and worker health, the unaccountable loss of mercury, and the impact of those losses upon the environment. This introduction also explains the methodology used in the selection and inventory of these record series. Other topics include the methodology used to produce this guide, the arrangement of the detailed record series descriptions, and information concerning access to the collection.

The Epidemiologic Records Inventory Project

The Epidemiologic Records Inventory Project reflects DOE Secretary Hazel R. O'Leary's efforts to support openness initiatives in the areas of environment, safety, and health. In view of the importance of various administrative, organizational, and operational records to epidemiologic and health-related studies, a moratorium on the destruction of such records has been in effect since 1989.

In May 1992, the DOE Office of Epidemiology and Health Surveillance (EH-42), responsible for coordinating all epidemiologic activities throughout the Energy complex, directed each DOE site and DOE contractor to prepare an inventory of all records pertinent to worker or community health-related studies. EH-42 prepared and furnished each site with guidelines that defined epidemiologic records, provided instruction for describing record series, outlined the site's role in inventorying epidemiologic records, and discussed the relationship of the epidemiologic inventory to DOE's comprehensive records inventory. These inventories should be completed in 1995.

In August 1993, DOE selected History Associates as its support services contractor for the Epidemiologic Records Inventory Project. HAI, a professional records management,

archives, and historical research services firm incorporated in 1981, has provided records management, historical research, and technical support for a number of DOE projects. HAI's role in this project includes verifying the accuracy, comprehensiveness, and quality of existing inventories, providing guidance to site records management teams, and, in some cases, conducting additional inventories.

As part of its task to verify and conduct inventories of epidemiologic and health related records at DOE and DOE contractor sites, HAI conducted a pilot study at the DOE-Oak Ridge Reservation. The primary purpose of this pilot project was to assist DOE in responding to the information needs identified in a March 1994 meeting with DOE, the Tennessee Department of Health (TDH), and other stakeholders. These groups expressed interest in the records relating to radioactive lanthanum (RaLa), iodine-131 and iodine-133, cesium-137, and the classified mercury collection. HAI began this task by inventorying and describing the record series contained in the collection of classified documents related to operations using large quantities of mercury. HAI is currently identifying and inventorying records relating to RaLa, iodine, and cesium, as well as resolving protocol and access issues. Although the identification and inventory of record series relating to other topics are still in progress, this process when completed, will allow DOE to provide the best possible assistance to health researchers interested in using the records relating to these hazardous substances.

HISTORY OF OAK RIDGE

The Oak Ridge Reservation

Oak Ridge, Tennessee, was one of three sites established by the Manhattan Project during World War II for the development of the first atomic bombs. Selected on September 19, 1942, the Clinton Engineering Works (CEW), later named Oak Ridge Reservation (ORR), supported three major production centers. The X-10 site, which later expanded to become the Oak Ridge National Laboratory (ORNL), housed the first large-scale graphite reactor. Known then as the Clinton Pile, the graphite reactor provided irradiated uranium slugs from which plutonium could be separated at the Oak Ridge pilot plant. The Y-12 facility produced enriched uranium-235 by electromagnetic separation; and the last production plant, K-25, produced enriched uranium-235 by the gaseous diffusion method.

The Oak Ridge plants produced significant amounts of hazardous waste by-products, and the Environmental Protection Agency (EPA) included Oak Ridge on its National Priorities List of Superfund hazardous waste sites in November 1989. In 1991 DOE signed the Oak Ridge Health Agreement that provides funds to the state of Tennessee for independent health assessment studies of the Oak Ridge operations and the surrounding population.

The Y-12 Plant

Since its inception in 1943, the official mission of Y-12 has changed over the decades. Originally, Y-12 separated the fissionable uranium isotope, uranium-235, from the more plentiful, but stable uranium-238 isotope, using the electromagnetic process. After the war, when this process was discontinued, Y-12's mission changed to manufacturing and developmental engineering. The plant produced nuclear weapon components, developed and fabricated test hardware for weapons, processed source and special nuclear materials, provided fabrication support for other Oak Ridge Reservation Plants, and supported other federal agencies. Y-12 recovered enriched uranium from obsolete weapons and scrap materials, processed enriched uranium from other DOE sites, and produced lithium compounds. Currently, the plant's mission is to serve as a key technology center for the development and demonstration of unique materials, components, and services of importance to DOE and the nation. Y-12 accomplishes its mission through the manufacture, reclamation, and storage of nuclear materials, construction of components for the nation's defense capabilities, and support of national security programs.

Since 1943, three contractors have operated the Y-12 Plant for the Manhattan Engineer District (MED) and its successor agencies. Tennessee Eastman, a subsidiary of Eastman Kodak Company, was the original contractor with the US Army Corps of Engineers. The Atomic Energy Act of 1946 assigned all atomic energy activities to the US Atomic Energy Commission (USAEC), effective January 1, 1947, and, later that year, the MED disbanded. In 1947, the Carbide and Carbon Chemical Corporation (CCCC), which later became known as Union Carbide Corporation (UCC)-Nuclear Division, replaced Tennessee Eastman and remained the Y-12 site contractor until 1984. In that year, Martin Marietta Energy Systems (MMES) assumed the Y-12 contract.

Lithium Isotope Separation and Enrichment at Y-12

In the early 1950s, the United States started to develop thermonuclear weapons. Unlike previous nuclear weapons, which derived their explosive force from the fission of uranium atoms, these new weapons obtained their energy from the fusion, or combination, of heavy hydrogen atoms. For this reason, these weapons became known as hydrogen bombs.

The primary material used in thermonuclear weapons was a form of hydrogen fuel known as lithium deuteride, produced from the lithium-6 isotope. Naturally occurring lithium contains about 7 percent of the lithium-6 isotope, while the rest of it is the lithium-7 isotope. In the 1950s, the Y-12 Plant developed, designed, constructed, and operated an industrial scale production process to separate and enrich the lithium-6 isotopes from lithium-7 isotopes for the production of lithium deuteride.

The separation process that produced most of the lithium deuteride was called Colex, a column-exchange process, in which the lithium isotopes were separated as the lithium was transferred between two chemical phases. One of the phases was an aqueous solution of lithium hydroxide and the other a lithium amalgam, a solution of lithium in mercury. The

lithium-6 isotope dissolved more thoroughly in mercury than lithium-7. Lithium amalgam remained in a stable state while in contact with an aqueous solution. In other words, the lithium-6 atoms migrated to the amalgam and the lithium-7 atoms adhered to the lithium hydroxide in the aqueous fluid. Cold War production schedules of lithium deuteride required millions of pounds of mercury, and President Eisenhower authorized Y-12 to use a significant portion of the mercury from the National Stockpile for the Colex process from 1955 to 1963.

Colex operations were located in Buildings 9201-4 (Alpha 4) and 9201-5 (Alpha 5), and these became the mainstay of Y-12's lithium separation and enrichment process. Active from 1955 to 1963, Colex operations produced enough enriched lithium to fulfill anticipated future needs in the weapons program. In 1963, the Y-12 lithium separation and enrichment program was shut down, and over the next several years, the plant was engaged in dismantling production equipment and recovering mercury from the production facilities and equipment. Most of the equipment still remains in Building 9201-4.

Oak Ridge developed and used other methods to separate lithium isotopes. In the early 1950s, ORNL experimented with substituting water with an organic solvent. This process, known as Orex, an organic exchange process, was not pursued beyond the pilot stage because of technical difficulties. Buildings 9733-1 and 9202 housed the Orex pilot plants from 1951 to 1953. Another method used in the separation of lithium isotopes was Elex, an electro-chemical separation process. Elex was conducted in Buildings 9733-2 and 9201-2 between 1950 and 1951. A production scale Elex process was started up in Building 9204-4 (Beta 4) and operated from 1953 to 1956. By 1956, Y-12 found Elex to be an inefficient process, abandoned it entirely, and operated the Colex process only.

THE ESTABLISHMENT OF THE Y-12 MERCURY TASK FORCE FILES

The 1983 Mercury Task Force

The Y-12 Mercury Task Force Files represent the result of a 1983 investigation into the use of mercury at Y-12 during the 1950s and early 1960s. This investigation, by a group of Y-12 employees unassociated with the lithium separation and enrichment processes, followed the May 17, 1983, publication of a declassified version of *Mercury Inventory at Y-12 Plant, 1950 Through 1977* (Y/AD-428). The publication of this report generated much media and public interest in the use of mercury at Y-12, especially in the effects of mercury toxicity on worker health, the unaccountable loss of mercury, and the impact of those mercury losses on the environment.

On May 20, 1983, Y-12 managers selected a Task Force to investigate the apparent mercury problem at Y-12. The Task Force's investigation took eight weeks, during which time the group collected pertinent documents concerning the lithium separation and enrichment processes, mercury material accountability, monitoring of the workplace for

mercury contamination, worker exposure, and environmental releases. Following the investigation, the Mercury Task Force summarized its findings in a classified report entitled *Mercury at Y-12: A Study of Mercury Use at the Y-12 Plant, Accountability, and Impacts on Y-12 Workers and the Environment-1950 to 1983* (Y/EX-21). A declassified version (Y/EX-24) is available, as is *Mercury at the Y-12 Plant: A Summary of the 1983 UCC-ND Task Force Study* (Y/EX-23).

Workplace Hygiene and Worker Health

An area of interest of the Mercury Task Force was the impact of mercury toxicity on workplace hygiene and worker health. From the beginning of the lithium isotope separation and enrichment process at Oak Ridge, AEC officials and Y-12 Plant managers and industrial hygienists recognized the need to safeguard and monitor the health of the workforce. From 1950 to 1954, industrial hygiene programs were instituted in the Orex, Elex, and Colex pilot plants. With the industrial scale use of mercury in the Colex operations after 1954, these officials became especially concerned about the medically recognized hazards of inhaling toxic mercury vapor. Since greater quantities of mercury would be used in full-scale Colex operations than previously, the plant expanded existing industrial hygiene programs and implemented new ones to protect worker health.

The Colex process was a pioneering technology that required specialized pumps, valves, and other equipment not used previously for such applications. Plant engineers anticipated frequent maintenance and operational problems during the initial months of operation. In 1955, the first full-scale year of the Colex process, the pumps and valves required much service and repair. Often the processing system was full of mercury and large quantities of it leaked and spilled on the floor. Drainage systems were modified so that the floor drains would direct the mercury into special tanks that separated the mercury from wastewater, mainly mopwater, collected in sumps that emptied into the creek.

From the outset of the Colex operations in 1953, Y-12 conducted both routine air sampling to monitor the mercury concentrations within the workplace and a urinalysis program to monitor individual worker exposure. During the start-up of Colex operations in 1955, air sampling indicated that mercury concentrations in Buildings 9201-4 and 9201-5 were higher than the then recommended standard of 0.1 milligram/cubic meter (now 0.5 mg/m³). Urinalysis also indicated that workers had been exposed to higher concentrations of mercury than normal in 1955. In general, the risk of mercury exposure was greatest in 1955 and 1956, the ramp-up years of Colex operations. After 1956, the risk declined as air sampling data indicated mercury concentrations below the threshold limit value of 0.1 mg/m³.

In addition to the air sampling and urinalysis programs, Y-12 conducted a special medical surveillance program of the Colex workforce. Workers were medically examined every six months and workers with a history of albuminuria, kidney problems, or hypertension were screened out and not assigned to work in mercury exposed areas.

In late 1955, AEC and Y-12 managers instituted various mechanisms to reduce mercury concentrations in the workplace and safeguard worker health. The plant studied paints and other substances that could reduce vapor pressure and dissolve mercury droplets. Large fans were installed at the ends of the process buildings to remove contaminated air and circulate fresh air throughout the production areas. A special vacuum system was installed for mercury removal. In early 1956, the plant emphasized the use of respirators and, after a close examination of the commercially available respirator filter cartridges, selected the Mersorb cartridge for use by Colex workers. The effectiveness of these and other measures is documented in the historical record of air concentrations, which shows significant reduction of mercury concentrations in the air by March 1956 and successful control of mercury release during the subsequent operating years.

Worker Medical and Mortality Studies, 1974-1983

The Mercury Task Force reviewed existing medical and mortality studies of mercury workers and suggested an additional one. In 1974, the National Institute for Occupational Safety and Health (NIOSH), under the direction of Dr. Z. Bell, conducted a medical check-up of 23 former Colex workers still employed at Y-12. Bell's examination revealed no cases of mercury poisoning and only one case of mercurialentis, a harmless discoloration of the eye, in a worker for whom there was no record of exposure.

In 1983, Oak Ridge Associated Universities conducted a preliminary mortality study of the Y-12 mercury workforce (1,477) and other Y-12 workers (4,920), comparing these groups to the U.S. population as a whole, to see if the death rates were higher for workers exposed to mercury than those not exposed to mercury. No differences were found between either cohort of Y-12 workers and the U.S. population, and no difference was found between Y-12 mercury workers and other Y-12 workers in death rates due to cancer, neurological disease, respiratory disease, and kidney failure.

As a result of the investigation by the Mercury Task Force, Y-12 initiated a special medical examination of the Y-12 mercury workforce, a study that offered the opportunity to evaluate a large group of people (2,450) 20 years after well documented exposure to mercury (27,000 urinalyses). Whereas studies conducted elsewhere of human populations with similar degrees of mercury exposure indicated no organic effects, this one could offer different results since the Y-12 population was larger and had a longer term after exposure. The investigators were looking for the most common symptoms of chronic metallic mercury poisoning--tremors, memory loss, and gingivitis. These symptoms are also signs of the natural aging process, another characteristic of the extant Y-12 mercury workforce. In August 1983, Y-12 selected eight experts in mercury toxicity and chronic mercurialism diagnosis and requested their recommendations on what tests and procedures should be used in this examination.

Mercury Material Balance

According to the 1977 Mercury Inventory Report, 2.4 million pounds of mercury were "lost" or "spilled" during the lithium separation process. Although the report correctly referred to this figure as the amount "lost" or "spilled" plus an "unaccounted for" amount, the subsequent public debate over the Y-12 mercury problem obscured the distinctions between those terms. The Task Force attempted to clear up the confusion over the amount of mercury "lost" and the amount "unaccounted for" by reviewing the extant records dealing with shipping, receiving, flasking, storage, accounting, and budget.

After reviewing the records, the Mercury Task Force determined that 2.0 million pounds of mercury were "lost" or "unaccounted for." The Task Force reported a lower figure than the 1977 Inventory Report because it found increases in several areas in which mercury was unaccounted for originally. The Task Force arrived at a lower amount of losses because in its in-depth review of the records, it was able to account for mercury previously believed to be lost. Of the 2.0 million pounds of "lost" mercury, the Task Force determined that 0.7 million pounds could be traced to losses to the environment.

The Task Force concluded that 1.3 million pounds of mercury still remained "unaccounted for," estimating that 60,000 pounds might be located within the structure of the buildings--inside the walls, ceilings, floors, and insulation. These are areas where the mercury would have been hardest to recover, as vapors and droplets were absorbed into these fixtures throughout the period of greatest mercury use. The Task Force based this estimate on an EPA study of the chlor-alkali industry, which showed substantial losses of mercury each year by absorption into building structure.

After its investigation, the Task Force remained uncertain about how much mercury was actually received at Y-12 during the 1950s and early 1960s. Rust Engineering conducted the mercury receiving operation for the AEC at Y-12. All records concerning such receipt had been transferred to the Federal Records Center in East Point, Georgia, and subsequently destroyed. The Task Force failed to uncover any data concerning the amount of mercury received at Y-12, but, based on interviews with former AEC officials, speculated that the facility had received somewhere between 500,000 and 900,000 pounds. From interviews, the Task Force also learned that much of the mercury was never weighed by the GSA, the AEC, Y-12, or Rust Engineering. These interviews revealed that the mercury flasks, which held up to 76 pounds of the substance, often leaked and many were not full when emptied into the Colex cascade.

METHODOLOGY

In a March 1994 meeting with DOE, the Tennessee Department of Health and other stakeholders, HAI agreed to identify, inventory, and describe the record series which comprise the Y-12 Mercury Task Force Files. Since the records were already gathered as

part of the investigation of the 1983 Mercury Task Force, there was no need for HAI to formulate criteria for the identification and selection of these records. Instead the HAI team familiarized themselves with the history of Oak Ridge, the Y-12 Plant, the use of mercury there, and the lithium isotope separation and enrichment processes. HAI accomplished background research through a thorough review of *Mercury at the Y-12 Plant: A Summary of the 1983 UCC-ND Task Force Study (Y/EX-23)* and *Mercury at Y-12 (Y/EX-24)* reports and the *Oak Ridge Health Studies: Phase 1 Report*, produced by ChemRisk in September 1993. HAI also conducted a preliminary examination of the Y-12 Mercury Task Force Files in March 1994.

In June 1994, HAI identified, inventoried, and described the record series of the Y-12 Mercury Task Force Files. Because of the sensitivity of this collection (a majority of the documents are classified as being Confidential, or Secret Restricted Data for national security reasons) classification officers at Y-12 reviewed HAI's completed inventory forms. For quality control, a member of HAI senior management reviewed the inventory that was completed by a different HAI employee against the actual records.

Data Elements

In accordance with the guidelines in *Information Required by the Department of Energy for Epidemiologic and Health Studies*, DOE developed a list of 123 (later revised to 85) data elements to assign to record series descriptions. In general, the data elements consist of terms pertaining to contractor organizations, individual employees, industrial hygiene activities, and facilities characteristics that help categorize and describe the major information contained in each of the record series. The data elements assigned to each record series are listed as numbers that correspond to the data elements found in Appendix A.

PRODUCTION AND USE OF THE GUIDE

After completing the inventory at the Y-12 Record Center, HAI researchers analyzed their inventory forms and described their contents. Information on each record series found in this guide includes the title of the series, their inclusive dates, location, active or inactive status, access restrictions, accession or other identification number, total volume, and the numbers of the record containers. Descriptions of the record series also provide information on the medium in which the record exists, their suitability for electronic scanning, their physical condition, the availability of finding aids, the arrangement of the records, the originating office, any known duplication, and the disposition authority.

LIMITATIONS OF THE GUIDE

This guide reflects HAI's June 1994 inventory and description of the record series of the Y-12 Mercury Task Force Files. HAI inventoried the collection at a record series level and, therefore, the information provided represents a broad description of the documents rather than a description of each individual document. Researchers who want to see a brief description of most of the documents in the Y-12 Mercury Task Force Files should consult the unclassified version of a report, *Mercury at Y-12: A Study of Mercury Use at the Y-12 Plant, Accountability, and Impacts on Y-12 Workers and the Environment-1950-1983* (Y/EX-24). Titles of documents that are classified have been removed from this report.

ARRANGEMENT OF THE GUIDE

History Associates grouped the record series descriptions into four categories in order to facilitate research. A brief explanation of each category is as follows:

I. FINDING AIDS & REFERENCE REPORTS

HAI inventoried and described the finding aids available for the Y-12 Mercury Task Force Files. Finding aids include two computer printouts of the Y-12 Mercury Database. These printouts are part of the Y-12 Mercury Task Force Files and are stored with them in the Y-12 Records Center vault. One printout is ordered by document/file number and the other is ordered alphabetically by author. These printouts are especially valuable since an electronic version of the Mercury Task Force Database no longer exists. Other finding aids described include the report, *Mercury at Y-12* (Y/EX-24), the bibliography of this report, which lists each document included in the collection, and a listing of the documents in a collection of unclassified materials that belong to the Y-12 Mercury Task Force Files. This collection is located in the DOE-OR Public Document Reading Room, 55 Jefferson Circle, Oak Ridge, TN, and at the Y-12 Plant, Building 9106, Room 41.

II. PROGRESS REPORTS

This category contains various reports that document the operations of the Y-12 Plant from the early 1950s to the mid-1970s. The bulk of the records represent the 1950s and the early 1960s, the period of greatest mercury use in the lithium isotope separation and enrichment processes.

III. MERCURY ACCOUNTABILITY RECORDS

Record series found under this heading relate to accounting and budgetary matters concerning mercury, in addition to shipping and receiving information, inventory and flasking information, and alloy and solvent loss in specific locations.

IV. HEALTH AND ENVIRONMENTAL RECORDS

The health and environmental group of records include health physics progress reports, records relating to urinalysis programs, records relating to air sampling programs for solvents and other materials, and records concerning the release and measurement of mercury within the environment.

Data Items in Record Series

Each record series description contain fifteen major pieces of information. Each of the fifteen is listed and further explained below.

Title and Inclusive Dates

Each record series description begins with a title that reflects the broad content of the record series and the inclusive dates of the records.

Location

Information on the physical location of the record series and an indication of its status, active or inactive, is provided here. Active records are necessary to conduct current business and are generally maintained in an office. Inactive records are those no longer needed for current business and are generally transferred to records storage areas for disposition. The Y-12 Mercury Task Force Files are located in the Y-12 Records Center vault.

Access Restrictions

Since most of the documents contained in the Y-12 Mercury Task Force Files are classified for national security reasons, access to the collection requires an individual to possess a DOE "Q" clearance and a demonstrated need to know. These requirements also hold for entrance to the Y-12 Records Center vault, where the collection is housed. For information on access to the Y-12 Mercury Task Force Files, researchers must first contact the custodian of the collection, Lowell L. McCauley, 615-574-7593.

The Y-12 Mercury Task Force Files were reviewed by the Y-12 Office of Classification to determine which documents could be released to the public based on current DOE guidelines. These documents were identified, recommended for public release, and sent to the DOE-OR Public Reading Room by Y-12 Information Management Services. The DOE-OR Public Reading Room is located at 55 Jefferson Circle. Copies of these unclassified materials are also located on the Y-12 Plant in Building 9106, Room 41. For information on viewing these collections at the DOE-OR Public Reading Room, contact Pam Buchanan, 615-576-1216. For information on viewing these documents onsite, contact Steve Wiley, Y-12 Health Studies Agreement Coordinator and Tennessee Oversight Agreement Coordinator, 615-576-0263.

For information regarding access to the Y-12 Records Center, contact Jack Lewis, Y-12 Records Manager, 615-576-8834.

Classified Information

To assist researchers and others in understanding the types of classified information, and the restrictions that govern access to it, the following excerpts from the DOE's *Understanding Classification* (June 1987) are provided:

Categories of Classified Information

There are three categories of classified information: Restricted Data; Formerly Restricted Data; and National Security Information.

1. RESTRICTED DATA (RD) is a special category of classified information with which the Department of Energy is principally concerned. The Restricted Data category is defined in the Atomic Energy Act as follows:

"The term RESTRICTED DATA means all data concerning (1) design, manufacture, or utilization of atomic weapons; (2) the production of special nuclear material; or (3) the use of special nuclear material in the production of energy, but shall not include data declassified or removed from the Restricted Data category pursuant to section 142."

2. FORMERLY RESTRICTED DATA (FRD) is information which has been removed from the Restricted Data category after the Department of Energy and the Department of Defense (DOD) have jointly determined that the information relates primarily to the military utilization of atomic weapons and can be adequately safeguarded in the same manner as National Security Information in the United States. This is known as transclassification. Such data may not be given to any other nation except under specially approved agreements.

3. NATIONAL SECURITY INFORMATION (NSI) is information which requires protection against unauthorized disclosure in the interest of the national defense or foreign relations of the United States and has been determined to be classified in accordance with the provisions of Executive Order 12356 or a prior Executive order.

Levels of Classified Information

There are three levels of classified information: Top Secret; Secret; and Confidential.

1. TOP SECRET is the level assigned to information of utmost importance to the national defense and security. Its unauthorized disclosure could reasonably be expected to cause *exceptionally grave damage* to national security.

2. SECRET is the level for information which, in the event of an unauthorized disclosure, could reasonably be expected to cause *serious damage* to national security.

3. CONFIDENTIAL is the level for information which, in the event of unauthorized disclosure, could reasonably be expected to cause *damage* to national security.

For further information, see also DOE Office of Safeguards and Security Headquarters, *Security Education Overview Handbook* (DOE/SA-0004).

Volume

An estimated volume of the records is given in linear feet and the exact number of file folders is provided as part of the record series description. One cubic foot is, on the average, equal to 24 file folders.

Accession/Other Identification Number

The Y-12 Mercury Task Force Files are organized according to a numerical filing system. Each file is numbered (1-853) and the number is preceded by an "M" for mercury. The number of each file for each record series is provided in sequential order as part of the record series description.

Condition

HAI judged the physical condition of the record series, categorizing them as either good, fair, or poor. If the records were judged to be in poor condition, an explanation is provided.

Container Number

Most records are stored in standard containers that hold one cubic foot of documents. In the case of the Y-12 Mercury Task Force Files, the container numbers represent file cabinet drawers. The Y-12 Mercury Task Force Files are contained in four legal-size filing cabinets secured by combination locks in the vault of the Y-12 Records Center. Drawer numbers are listed sequentially as part of the record series. Drawer 1: M1-M55; Drawer 2: M56-M109; Drawer 3: M110-M164; Drawer 4: M165-M230; Drawer 5: M231-303; Drawer 6: M304-M349; Drawer 7: M350-M402; Drawer 8: M403-M462; Drawer 9: no M-numbered files; Drawer 10: M463-M498; Drawer 11: M499-598; Drawer 12: 599-699; Drawer 13: M700-M853; Drawer 14: Y-12 Mercury Task Force Database Printouts.

Medium

The physical nature of the records, such as paper, microfilm, electronic, or audiovisual, is noted.

Scanning Suitability

HAI has provided a statement concerning the suitability of records for electronic scanning purposes. Factors which may effect scanning suitability, including paper size, weight, ink and paper colors, type font, and the presence of handwritten data, graphics, diagrams, and photographs are noted under this heading. Depending on the state-of-the-art in scanning technology, this statement may not be accurate in the future.

Duplication

As part of a classification review of the records in the Y-12 Mercury Task Force Files, all originally unclassified records were copied and placed in the DOE-OR Public Document Reading Room, 55 Jefferson Circle, 615-576-1216. Copies of these originally unclassified documents are also located on the Y-12 Plant in Building 9106, Room 41.

Arrangement

The arrangement of the record series, for example, numerical, chronological or alphabetical, is described when possible. The Y-12 Mercury Task Force Files are arranged by a numerical filing system. Each file is numbered (1-853) and the number is preceded by an "M" for mercury.

Originating Office

The originating office of the organization (e.g., Health Physics Department, Radiation Safety Division, or Union Carbide Company) which produced the records is provided here. In some cases, as in Technical Reports, Technical Memoranda, and Quarterly Reports, for example, several organizational departments and divisions contributed documents to the record series, and the term "various departments and divisions" is used.

Finding Aids

If finding aids exist, they are described.

Disposition Authority

Disposition authorities cited refer to the NARA General Records Schedules and DOE Records Schedules. Since this is a permanent collection, disposition authority is not applicable.

Data Elements

The data elements, which are similar to key words, that HAI considered pertinent to the record series are listed in numerical order. The numbers correspond to the revised data elements list (see Appendix A).

I. FINDING AIDS & REFERENCE REPORTS

Mercury At Y-12: A Study of Mercury Use at the Y-12 Plant, Accountability, and Impacts on Y-12 Workers and the Environment-1950 to 1983

Location: 1. Active: Records Center, Y-12 Plant, Oak Ridge, TN
2. Inactive:

Access Restrictions: Unclassified version (Y/EX-24) *Volume:* 1 volume, 415 pages

Accession or Other ID Number: N/A *Condition:* Good

Container Numbers: N/A *Medium:* Paper

Scanning Suitability: Suitable *Duplication:* DOE Public Reading Room, 55 Jefferson Circle, 615-576-1216

Arrangement: N/A

Originating Office: 1983 Mercury Task Force

Finding Aids: N/A

Disposition Authority: Permanent Collection

Series Description: *Mercury At Y-12: A Study of Mercury Use at the Y-12 Plant, Accountability, and Impacts on Y-12 Workers and the Environment-1950 to 1983* is the final report of the 1983 Mercury Task Force. It provides a history of lithium isotope separation and a detailed discussion of the mercury material accountability at Y-12. The report also furnishes summaries of the health studies performed on Y-12 workers exposed to elevated concentrations of mercury toxicity and efforts by Y-12 to monitor the workplace for mercury contamination and safeguard workers against mercury toxicity. The report also summarizes studies of the environmental impact of mercury toxicity. The bibliography provides a document-level inventory and description of the Y-12 Mercury Task Force Files.

Data Elements: N/A

DOE-OR Public Reading Room Collection, 1994

Location: 1. Active: 55 Jefferson Circle, Oak Ridge, TN
2. Inactive:

Access Restrictions: Unclassified

Volume: 306 File Folders;
10.0 linear feet

Accession or Other ID Number: Y/HG-0001-Y/HG-0306

Condition: Good

Container Numbers: N/A

Medium: Paper

Scanning Suitability: Suitable

Duplication: Y-12 plant-site,
Building 9106, Room 41

Arrangement: Numerical by file code

Originating Office: Various Y-12 departments and divisions

Finding Aids: For a current list of these documents, contact Steve Wiley, Y-12 Health Studies Agreement Coordinator and Tennessee Oversight Agreement Coordinator, 615-576-0263.

Disposition Authority: Permanent Collection

Series Description: The DOE-OR Public Reading Room Collection is an assembly of unclassified documents that are part of the Y-12 Mercury Task Force Files, the bulk of which are classified. These documents were identified by the Y-12 Office of Classification, reviewed to verify their unclassified status, recommended for public release, and sent to the DOE-OR Public Document Reading Room by Y-12 Information Management Services. The arrangement of the files that contain these documents does not parallel the arrangement of the Y-12 Mercury Task Force Files, but rather reflects the order of the release of the document. The series contains a variety of documents from the Y-12 Mercury Task Force Files pertaining to mercury accountability data, environmental monitoring and analysis, chemical properties of mercury, worker urinalysis programs, air solvent monitoring and analysis reports, progress reports of various departments and divisions, and relevant correspondence.

Data Elements: N/A

Y-12 Mercury Task Force Data Base Printouts

Location: 1. Active: Y-12 Records Center, Building 9711-5, Room 106
2. Inactive:

Access Restrictions: Secret/RD

Volume: 0.5 linear feet

Accession or Other ID Number: N/A

Condition: Good

Container Numbers: Drawer 14

Medium: Paper

Scanning Suitability: Suitable

Duplication: Information is contained in the bibliography of the *Mercury at Y-12*, see page 9

Arrangement: One printout is arranged by file number, the other printout is arranged alphabetically

Originating Office: 1983 Y-12 Mercury Task Force

Finding Aids: This is a finding aid to the classified mercury collection

Disposition Authority: Permanent Collection

Series Description: As a result of the 1983 Y-12 Mercury Task Force's investigation of mercury use at Y-12 since the early 1950s, hundreds of documents were collected and organized into what is now known as the Y-12 Mercury Task Force Files. Information concerning these documents was entered into an electronic database, which subsequently has been lost. These two printouts of the information contained in the database are the only existing record of the database. They serve as useful guides to the contents of each file in the collection.

Data Elements: N/A

II. PROGRESS REPORTS

Alloy Division Monthly Progress Reports, 1955-1961

Location: 1. Active:
2. Inactive: Y-12 Records Center, Building 9711-5, Room 106

Access Restrictions: Secret/RD

Volume: 63 File Folders;
2.14 linear feet

Accession or Other ID Number: M432, M610-611, M615-617, M619-620, M624-625, M628-629, M630-631, M636-637, M639-645, M647-650, M653, M655, M657-659, M661-667, M669-689

Condition: Good

Container Numbers: Drawers 8, 10, 13

Medium: Paper

Scanning Suitability: Suitable

Duplication: May be part of the unclassified collection, see statement on page 12

Arrangement: Numerical by file code

Originating Office: Alloy Division

Finding Aids: Y-12 Mercury Task Force Database Printout; *Mercury at Y-12 (Y/EX-24)* Bibliography

Disposition Authority: Permanent Collection

Series Description: This record series consists of the monthly progress reports of the Y-12 Alloy Division. These reports summarized and expanded upon the weekly progress reports of the Alloy Division's production of lithium deuteride through the Colex, Elex, and Aspen operations. Reports are divided into four sections: 1) Colex operation, 2) Elex operation, 3) finishing and fabrication process, and 4) Aspen chemical. The Colex section generally contains information on Alpha 4 and Alpha 5 cascades, auxiliary processes such as the evaporation of chlorides, acid washes with mercury, use of scrubbers, raw feed salt practices, and construction of new facilities and equipment. The Elex section provides similar information on the Beta 4 cascade. Information concerning the finishing and fabrication process included production of lithium deuteride and activities of the wet chemistry facility and reduction facility. The section on the Aspen chemical process provides information on the production of lithium deuteride, grinding and loading molds, pressing materials, and rubber fabrication.

Data Elements: 88

Alloy Division Weekly Progress Reports, 1955-1959

Location: 1. Active:
2. Inactive: Y-12 Records Center, Building 9711-5, Room 106

Access Restrictions: Secret/RD

Volume: 29 File Folders;
1.2 linear feet

Accession or Other ID Number: M433, M435-436, M483, M485-486, M492, M604-607, M909, M612-614, M620-623, M626-627, M632-635, M638

Condition: Good

Container Numbers: Drawers 8, 10, 12

Medium: Paper

Scanning Suitability: Suitable

Duplication: May be part of the unclassified collection, see statement on page 12

Arrangement: Numerical by file code

Originating Office: Alloy Division

Finding Aids: Y-12 Mercury Task Force Database Printout; *Mercury at Y-12* (Y/EX-24) Bibliography

Disposition Authority: Permanent Collection

Series Description: This record series consists of the weekly progress reports of the Y-12 Alloy Division for 1955-1959. These reports provide detailed descriptive information on the lithium deuteride production in the Colex and Elex operations and the Aspen chemical process. The use of mercury, except in the acid wash procedure, is not widely discussed in these reports. The general outline of the report consists of sections on Beta Operations, Alpha Operations, and the Aspen chemical process. Under each section the following topics are described: (Beta) wet chemistry, reduction, cascades, and other operations; (Alpha) cascades, mercury sets for acid wash, construction of new facilities and equipment; (Aspen) production of lithium deuteride.

Data Elements: 88

Quarterly Technical Progress Report Y-12 Plant, 1959-1975

Location: 1. Active:
2. Inactive: Y-12 Records Center, Building 9711-5, Room 106

Access Restrictions: Secret/RD

Volume: 15 File Folders;
0.625 linear feet

Accession or Other ID Number: M14, M198-204,
M226-227, M229, M230-231

Condition: Good

Container Numbers: Drawers 1-3

Medium: Paper

Scanning Suitability: Suitable

Duplication: May be part of the unclassified collection, see statement on page 12

Arrangement: Numerical by file code

Originating Office: Development Division

Finding Aids: Y-12 Mercury Task Force Database Printout; *Mercury at Y-12* (Y/EX-24) Bibliography

Disposition Authority: Permanent Collection

Series Description: Y-12 Quarterly Technical Progress Reports contain both summary and detailed reports of various processes, programs, problems, and studies from 1959-1975. General topics include chemical engineering-plant studies; reports on the Orex, Elex, and Colex pilot studies; reports on special problems; developments in lithium, ceramics, and plastics processing and fabrication; developments in lithium chemistry; developments in electrochemical separation, lithium hydride and deuteride processing and development; metallurgy, nuclear, and thermonuclear studies; development of instruments for engineering and physics; developments in functional and analytical chemistry; and developments in radiation safety and criticality control.

Data Elements: 81, 88, 114

Technical Division Monthly Progress Reports, 1955-1958

Location: 1. Active:
2. Inactive: Y-12 Records Center, Building 9711-5, Room 106

Access Restrictions: Secret/RD

Volume: 47 File Folders;
1.95 linear feet

Accession or Other ID Number: M1-M13, M94-117, M142-152

Condition: Good

Container Numbers: Drawers 1-3

Medium: Paper

Scanning Suitability: Text is suitable for scanning; photographs may not be suitable.

Duplication: May be part of the unclassified collection, see statement on page 12

Arrangement: Numerical by file code

Originating Office: Technical Division

Finding Aids: Y-12 Mercury Task Force Database Printout; *Mercury at Y-12* (Y-EX-24) Bibliography

Disposition Authority: Permanent Collection

Series Description: The Technical Division Monthly Progress reports contain both brief summaries and detailed reports on general accounting and business activities at Y-12; design and construction of new buildings, work areas, and equipment; mechanical inspection of work areas, processing equipment, instruments; project, chemical, industrial, civil, architectural, electrical, and instrumental engineering; alpha air monitoring; product analysis; chemical processing and reduction, including mercury; technical development involving alloy production, chemical processing and reduction, metal fabrication and processing and aspen fabrication; the development of isotope separation; and metal fabrication and processing. Detailed descriptions of mercury use are found in sections describing lithium deuteride fabrication and specification, the physical chemistry of lithium deuteride, and the safety and security of incoming and outgoing mercury.

Data Elements: 3, 88, 103, 118, 120, 123, 124

Technical Memoranda, 1953-1982

Location: 1. Active:
2. Inactive: Y-12 Records Center, Building 9711-5, Room 106

Access Restrictions: Confidential/RD, Secret/RD

Volume: 73 File Folders;
3 linear feet

Accession or Other ID Number: M205-207,
M240-243, M417-418, M421, M438-443,
M524, M529-584, M810-814

Condition: Good

Container Numbers: Drawers 4-5, 8, 11, 13

Medium: Paper

Scanning Suitability: Suitable

Duplication: May be part of
the unclassified collection, see
statement on page 12

Arrangement: Numerical by file code

Originating Office: Various Y-12 departments and divisions

Finding Aids: Y-12 Mercury Task Force Database Printout; *Mercury at Y-12* (Y/EX-24)
Bibliography

Disposition Authority: Permanent Collection

Series Description: Technical memoranda, in contrast to technical reports, are short reports, summaries, histories, and chronologies on specific topics, such as summaries of meetings and conferences concerning the lithium isotope separation, enrichment, and purification processes; summaries and reports of long range plans on lithium separation and lithium enrichment processes; histories of the Colex, Orlex and Elex processes and pilot plants; and reports on environmental monitoring and contamination of the creeks, rivers, and streams near the Y-12 plant.

Data Elements: 88, 114, 117

Technical Reports, 1953-1982

Location: 1. Active:
2. Inactive: Y-12 Records Center, Building 9711-5, Room 106

Access Restrictions: Unclassified, Confidential/RD,
Secret/RD

Volume: 45 File Folders;
1.875 linear feet

Accession or Other ID Number: M17-18, M23, M54,
M59, M69, M70, M80-81, M85, M90-93, M105,
M118, M120, M154-155, M158-159, M207,
M239, M442, M458, M740, M742-744, M754-755,
M757, M760, M763, M770-772, M778, M786,
M788, M790-791, M794-795, M799

Condition: Good

Container Numbers: Drawer 1-5, 8, 11, 13

Medium: Paper

Scanning Suitability: Suitable

Duplication: May be part of
the unclassified collection, see
statement on page 12

Arrangement: Numerical by file code

Originating Office: Various Y-12 departments and divisions

Finding Aids: Y-12 Mercury Task Force Database Printout; *Mercury at Y-12* (Y/EX-24)
Bibliography

Disposition Authority: Permanent Collection

Series Description: This record series consists of technical reports that cover various topics relating to the lithium isotope separation and enrichment processes and the monitoring of mercury contamination. This series contains two subseries based on the following topics:

Technical Reports, 1953-1982 (continued)

Series Description (continued)

- 1) Instructions, procedures, and instrumentation for the Colex, Orex, and Elex processes and instruments and chronologies of lithium separation in buildings 9201-4 and 9201-5: This subseries contains reports on lithium amalgams; reports on the properties of lithium isotopes including a refrigeration system; reports on physical properties of mercury at various temperatures; status and final reports on the isotope separation process in buildings 9201-4 and 9201-5; reports on experiments involving lithium isotope separation and purification in buildings 9201-4 and 9201-5; specifications for mercury storage flasks; reports on chemical inventories; and, inspection reports of lithium processing facilities.
- 2) Monitoring of mercury contamination: This subseries includes reports on mercury discharges into the rivers and streams surrounding Y-12 and the East Fork Poplar Creek; reports on personnel exposed to mercury at various work locations in buildings 9201-4 and 9201-5; reports on design and development of instruments used in the lithium processing and monitoring for mercury contamination; reports on decontamination of buildings involved in lithium processing; incident reports involving mercury; reports on the portable mercury vapor detector; reports on mercury levels in the New Hope Pond; ecological and environmental reports on mercury; and, reports on deuterium and heavy water.

Data Elements: 1, 3, 88, 114, 115, 117, 120, 124

Y-12 Plant Quarterly Report, 1952-1981

Location: 1. Active:
2. Inactive: Y-12 Records Center, Building 9711-5, Room 106

Access Restrictions: Secret/RD

Volume: 118 File Folders;
4.92 linear feet

Accession or Other ID Number: M19, M24-39,
M86-89, M121-141, M153, M160-189, M190-191,
M194, M197, M232-233, M235-238, M690-721

Condition: Good

Container Numbers: Drawers 1-5, 12-13

Medium: Paper

Scanning Suitability: Text is suitable for scanning; graphs, tables, charts, and photographs may not be suitable.

Duplication: May be part of the unclassified collection, see statement on page 12

Arrangement: Numerical by file code

Originating Office: Various divisions within the Y-12 plant contributed to the reports.

Finding Aids: Y-12 Mercury Task Force Database Printout; *Mercury at Y-12* (Y/EX-24) Bibliography

Disposition Authority: Permanent Collection

Series Description: Quarterly reports contain both detailed and summarized information on the activities at Y-12 plant. Reports describe chemical processes, business activities, security concerns, worker protection measures, and monitoring programs. Information specific to mercury is found in sections concerning production and fabrication of lithium deuteride, employee and plant protection, and process development. The employee and plant protection section describes monitoring of mercury exposure and release, including sampling of the plant's water supply and Poplar Creek (measurements reported in gallons/day). Workers exposed to mercury are reported as the number of workers sampled and the percentage of workers exposed. The number of air samples and smears are reported for each quarter and results are given in parts per million (ppm) and milligrams/cubic meter (mg/m³). Mercury vapor air concentrations, reported in mg/m³ for buildings 9201-4 (Alpha-4) and 9201-5 (Alpha-5) include the number of samples and the percentage of samples that gave abnormal or elevated results. Process development measures are described to improve mercury monitoring and ways to prevent loss of material in mercury recovery. Most quarterly reports also contain photographs of instruments, processing machinery and equipment, buildings, waste storage and treatment areas, and plant grounds.

Data Elements: 3, 38, 40, 42, 45, 68, 75, 81, 83, 88, 102, 103, 107, 114, 117, 118, 124

Y-12 Production/Operation Records, 1955-1963

Location: 1. Active:
2. Inactive: Y-12 Records Center, Building 9711-5, Room 106

Access Restrictions: Secret/RD

Volume: 19 file folders;
0.792 linear feet

Accession or Other ID Number: M77, M246,
M247, M248, M249, M250, M251, M252, M253,
M254, M256, M269, M585, M587, M588,
M589, M591, M592, M751

Condition: Good

Container Numbers: Drawers 5 and 11

Medium: Paper

Scanning Suitability: Text is suitable for scanning; graphs, tables, charts, and photographs may not be suitable.

Duplication: May be part of the unclassified collection, see statement on page 12

Arrangement: Numerical by file code

Originating Office: Production Division

Finding Aids: Y-12 Mercury Task Force Database Printout; *Mercury at Y-12 (Y/EX-24)* Bibliography

Disposition Authority: Permanent Collection

Series Description: This record series provides both quantitative and qualitative information on the operation of the lithium separation and enrichment processes in Building 9201-4 (Alpha 4) and Building 9201-5 (Alpha 5) between 1955 and 1966. The series consists of two subseries: 1) Shift Foreman's Logbooks, Alpha 4 and Alpha 5, 1955-1963 and 2) Operations Foreman's Logbooks, Alpha 4 and Alpha 5, 1955-1966.

Y-12 Production/Operation Records, 1955-1963 (continued)

Series Description (continued)

- 1) Shift Foreman's Logbooks, Alpha 4 and Alpha 5, 1955-1963: This subseries provides information on the following aspects of Alpha 4 and Alpha 5 operations: daily feed pump and extract (1961); Alpha 4 decomposition (1956); instructions for Alpha 4 cascade procedures (6/1955-3/1957; 3/1957-12/1958; 12/1958-12/1962); instruction for power use in Alpha 5 cascade (12/1962-6/1963); instruction for Alpha 4 and Alpha 5 auxiliary operations (12/1957-8/1958); Alpha 4 mercury and alloy losses (5/1958-3/1961); and Alpha 4 and Alpha 5 salt and mercury sump losses (4/1961-11/1961; 1/1962-5/1963).
- 2) Operation Foreman's Logbooks, Alpha 4 and Alpha 5, 1955-1966: This subseries provides information on the following aspects of Alpha 4 and Alpha 5 operations: daily feed pump and extract (1958; 1960); Alpha raw data Colex reports (1956, 1957, 1959); Y-12 feed salt status (1955); standard operating procedures for Colex (1954); and daily production records of Alpha 4 and Alpha 5 cascades (1955-1966).

Data Elements: 8, 88, 115, 119, 120, 124

III. MERCURY ACCOUNTABILITY RECORDS

Alloy and Mercury Solvent Loss Study - Alpha 5, October 1957

Location: 1. Active:
2. Inactive: Y-12 Records Center, Building 9711-5, Room 106

Access Restrictions: Confidential/RD

Volume: 1 File Folder;
0.04 linear feet

Accession or Other ID Number: M47

Condition: Good

Container Numbers: Drawer 1

Medium: Paper

Scanning Suitability: Suitable

Duplication: May be part of
the unclassified collection, see
statement on page 12

Arrangement: Numerical by file code

Originating Office: Division unknown

Finding Aids: Y-12 Mercury Task Force Database Printout; *Mercury at Y-12 (Y/EX-24)*
Bibliography

Disposition Authority: Permanent Collection

Series Description: This series of records constitutes a study that examines the origin of mercury alloy and mercury solvent loss from Alpha 5 (Building 9201-5) cascade. It describes the cascade system, the sump tanks, and the waste tanks. Sampling procedures for the sump and waste tanks are provided along with the metals found during analysis of liquid waste contents. The amounts of mercury lost are given in pounds and associated mercury costs. The study includes a diagram of the Alpha 5 cascade. Correspondence pertaining to the study is included in the file.

Data Elements: 88, 89, 115, 120

Mercury Accounting and Budget Records, 1949-1978

Location: 1. Active:
2. Inactive: Y-12 Records Center, Building 9711-5, Room 106

Access Restrictions: Unclassified, Confidential/RD,
Secret/RD

Volume: 60 File Folders;
2.5 linear feet

Accession or Other ID Number: M41, M46,
M50, M60, M67, M71-72, M83, M208-211,
M213-216, M222-224, M325, M425, M468-476,
M500-504, M506-507, M602

Condition: Good

Container Numbers: Drawers 1-2, 4, 6, 8, 10-12

Medium: Paper

Scanning Suitability: Suitable

Duplication: May be part of
the unclassified collection, see
statement on page 12

Arrangement: Numerical by file code

Originating Office: Production Division

Finding Aids: Y-12 Database Printout; *Mercury at Y-12* (Y/EX-24) Bibliography

Disposition Authority: Permanent Collection

Series Description: This record series consists of accounting and budget records concerning shipment, receiving, flasking and storage, inventory, loss, and recovery of mercury at Y-12 from 1949 to 1978. Records include procedures and audits for accountability and flasking of mercury and solvents, budget estimates, mercury storage and shipment receipts, amounts of mercury lost and associated costs, procurement data, inventory lists, accountability of mercury excess and loss, correspondence relating to accounting and budget, and reports of the investigating committee that compiled the first inventory of Y-12 mercury use in 1977. Some documents pertain to the reclassification and security operations of Alpha 4 and 5 (Buildings 9201-4 and 9201-5). A floor plan for building 9201-5 is included.

Data Elements: 89, 115, 117

Mercury Flasking and Storage, 1970-1975

Location: 1. Active:
2. Inactive: Y-12 Records Center, Building 9711-5, Room 106

Access Restrictions: Unclassified, Confidential/RD,
Secret/RD

Volume: 1 File Folder;
0.04 linear feet

Accession or Other ID Number: M42

Condition: Good

Container Numbers: Drawer 1

Medium: Paper

Scanning Suitability: Suitable

Duplication: May be part of
the unclassified collection, see
statement on page 12

Arrangement: Numerical by file code

Originating Office: Processing Department and Manufacturing Division

Finding Aids: Y-12 Mercury Task Force Database Printout; *Mercury at Y-12* (Y/EX-24)
Bibliography

Disposition Authority: Permanent Collection

Series Description: This record series contains documents concerning the flasking and storage of mercury at Y-12 from 1970-1975. The records include correspondence and inventories documenting the amounts of mercury in pounds and gallons, the costs of both flasking and storage, and the original source of the mercury, most of which came from the General Services Administration (GSA) stock pile.

Data Elements: 88, 89, 115, 117

Mercury Flask Data, 1962-1979

Location: 1. Active:
2. Inactive: Y-12 Records Center, Building 9711-5, Room 106

Access Restrictions: Unclassified, Confidential/RD,
Secret/RD

Volume: 17 File Folders;
0.7 linear feet

Accession or Other ID Number: M41, M56,
M75, M81, M306, M321, M323, M348, M350,
M356, M363, M367, M405, M409-410, M416

Condition: Fair

Container Numbers: Drawers 1, 2, 6, 7, 8

Medium: Paper

Scanning Suitability: Unsuitable

Duplication: May be part of
the unclassified collection, see
statement on page 12

Arrangement: Numerical by file code

Originating Office: Various divisions, including Metal Preparation Division, Production
Division, and Supply Operations Branch

Finding Aids: Y-12 Mercury Task Force Database Printout; *Mercury at Y-12 (Y/EX-24)*
Bibliography

Disposition Authority: Permanent Collection

Series Description: This record series consists of data on mercury flasking, storage, and inventory of mercury. Correspondence discussing procedures for quality control of mercury flasking is interspersed throughout the files. The series also contains logbooks for flasking mercury and inventory lists of mercury. Topics represented in the records include handling costs for flasking, storing, and shipping mercury; certification of compliance on mercury storage flasks; laboratory analysis data; and safety analysis of flasking operations and mercury recovery data.

Data Elements: 88, 115, 117, 120, 123

Mercury Inventory and Flasking Reading File, 1962-1968

Location: 1. Active:
2. Inactive: Y-12 Records Center, Building 9711-5, Room 106

Access Restrictions: Confidential/RD, Secret/RD

Volume: 2 File Folders;
0.08 linear feet

Accession or Other ID Number: M40-M41

Condition: Good

Container Numbers: Drawer 1

Medium: Paper

Scanning Suitability: Suitable

Duplication: May be part of
the unclassified collection, see
statement on page 12

Arrangement: Numerical by file code

Originating Office: Plant Superintendent and Production Division

Finding Aids: Y-12 Mercury Task Force Database Printout; *Mercury at Y-12* (Y/EX-24)
Bibliography

Disposition Authority: Permanent Collection

Series Description: This record series consists of correspondence, inventory lists, procedural statements, and reports on quantities of mercury handled at Y-12 from 1962-1968. Included in the series is the total cost and quantity (pounds) of mercury on site. The documents indicate the amounts of mercury lost at Y-12 and the quantity not recovered.

Data Elements: 88, 89, 115, 120

Mercury Shipment Data, 1955-1982

Location: 1. Active:
2. Inactive: Y-12 Records Center, Building 9711-5, Room 106

Access Restrictions: Unclassified, Confidential/RD,
Secret/RD

Volume: 66 File Folders;
2.75 linear feet

Accession or Other ID Number: M40-49, M51-55,
M64-68, M74, M76, M78-79, M81, M212,
M326-328, M331-333, M335, M351, M354-355,
M368, M374-381, M385-388, M394-396, M398-401,
M403, M405-407, M415, M423-424, M426-430,
M513, M818

Condition: Good

Container Numbers: Drawers 1-4, 6-8, 10, 13

Medium: Paper

Scanning Suitability: Suitable

Duplication: May be part of
the unclassified collection, see
statement on page 12

Arrangement: Numerical by file code

Originating Office: Process Analysis, Production Division, and Plant Supervisor

Finding Aids: Y-12 Mercury Task Force Database Printout; *Mercury at Y-12* (Y/EX-24)
Bibliography

Disposition Authority: Permanent Collection

Series Description: This record series contains mercury shipment data documenting the incoming and outgoing amounts of mercury used in the production of lithium deuteride at Y-12. The majority of the documents are inventory lists and logbooks of mercury and solvents from the Alpha and Beta processing facilities. Records include shipping and receiving receipts for mercury between Y-12 and the General Services Administration (GSA) stockpile and other organizations. Interspersed throughout the files is correspondence and internal memoranda regarding the mercury shipments and procedural statements from Atomic Energy Commission (AEC), Energy Research and Development Administration (ERDA), Department of Energy (DOE), GSA, and Y-12.

Data Elements: 15, 88, 114, 120

IV. HEALTH AND ENVIRONMENTAL RECORDS

Bio-Analytical Control Sample Results, 1974

Location: 1. Active:
2. Inactive: Y-12 Records Center, 9711-5 Room 106

Access Restrictions: Secret/RD

Volume: 1 File Folder;
0.24 linear feet

Accession or Other ID Number: M511

Condition: Good

Container Numbers: Drawer 11

Medium: Paper

Scanning Suitability: Suitable

Duplication: May be part of
the unclassified collection, see
statement on page 12

Arrangement: Numerical by file code

Originating Office: Division unknown

Finding Aids: Y-12 Mercury Task Force Database Printout; *Mercury at Y-12 (Y/EX-24)*
Bibliography

Disposition Authority: Permanent Collection

Series Description: This record series contains laboratory measurements with a chart (several pages) of measurements of various nuclides to which workers were exposed. The chart provides the quantity of nuclide and the type of analysis used to determine the amount of exposure. Types of analysis include: thermoluminescent dosimetry (TLD), urinalysis, or calorimetric. Urinalysis was used to determine exposure to uranium and mercury. TLD was used to determine beta/gamma dosage and exposure to radioactive magnesium, lithium deuteride, lithium hydride, and thorium. Calorimetry was used to determine airborne exposure to thorium.

Data Elements: 59, 68, 114

Health Physics Hygiene Progress Reports, 1949-1953

Location: 1. Active:
2. Inactive: Y-12 Records Center, Building 9711-5, Room 106

Access Restrictions: Unclassified

Volume: 8 File Folders;
0.33 linear feet

Accession or Other ID Number: M453, M494
(2 files with this number), M495-M499

Condition: Good

Container Numbers: Drawer 10

Medium: Paper

Scanning Suitability: Suitable

Duplication: May be part of
the unclassified collection, see
statement on page 12

Arrangement: Numerical by file code

Originating Office: Health Physics Division

Finding Aids: Y-12 Mercury Task Force Database Printout; *Mercury at Y-12* (Y/EX-24)
Bibliography

Disposition Authority: Permanent Collection

Series Description: This record series contains monthly, bi-monthly, and semi-annual reports of the activities of the Oak Ridge Health Physics Division. Reports describe, quantitatively and qualitatively, surveys for beryllium and mercury vapor conducted throughout the Oak Ridge Reservation (X-10, Y-12, and K-25). Substances surveyed are uranium, beryllium, and mercury. These are surveys of air, water, sewage, buildings, and the containers and contents of incoming and outgoing shipments. Uranium, beryllium, and mercury levels in the air are reported in milligrams/cubic meter (mg/m³) and uranium, beryllium, and mercury levels in water and sewage are reported in parts per million (ppm). A filtration paper system for air sampling is described. Neutron film badge results are given in millirems/day (mr/day) for personnel monitoring. Reports also describe monitoring instrumentation, calibration of instrumentation, and site survey activities.

Data Elements: 88, 114, 81, 93, 124

Mercury Losses to East Fork Poplar Creek, 1955-1982

Location: 1. Active:
2. Inactive: Y-12 Records Center, 9711-5 Room 106

Access Restrictions: Unclassified

Volume: 1 Folder; 0.04
linear feet

Accession or Other ID Number: M491

Condition: Good

Container Numbers: Drawer 10

Medium: Paper

Scanning Suitability: Suitable

Duplication: May be part of
the unclassified collection, see
statement on page 12

Arrangement: Numerical by file code

Originating Office: Division unknown

Finding Aids: Y-12 Mercury Task Force Database Printout; Mercury at Y-12 (Y/EX-24)
Bibliography

Disposition Authority: Permanent Collection

Series Description: This record series contains letter reports and correspondence on mercury losses to the East Fork Poplar Creek for the period 1955-1982. The losses are reported in pounds and parts per million.

Data Elements: 118, 122

Mercury Solvent Air Sampling Records, 1954-1959

Location: 1. Active:
2. Inactive: Y-12 Records Center, Building 9711-5 Room 106

Access Restrictions: Classified, Secret/RD

Volume: 3 File Folders;
0.125 linear feet

Accession or Other ID Number: 14-12-12,
20-9-17 (2 files with same number)

Condition: Fair

Container Numbers: Drawer 9

Medium: Paper

Scanning Suitability: Letters are suitable,
charts and blueprints are unsuitable

Duplication: May be part of
the unclassified collection, see
statement on page 12

Arrangement: Numerical by file code

Originating Office: Division unknown

Finding Aids: Y-12 Mercury Task Force Database Printout; *Mercury at Y-12* (Y/EX-24)
Bibliography

Disposition Authority: Permanent Collection

Series Description: This record series contains results of air samples analyses from buildings 9201-4 and 9201-5. The information includes the number of samples taken each month, in units of concentration in milligrams/cubic meter (mg/m^3) of mercury in air. The results are reported by giving the percentage of samples falling into concentration ranges (with intervals of $0.1 \text{ mg}/\text{m}^3$) between <0.1 and $>1.0 \text{ mg}/\text{m}^3$. Computer printouts and charts of readings of monitors placed in the ventilation system of buildings 9201-4 and 9201-5 are included along with blueprints of the monitoring system. The health physics and Y-12 engineering divisions performed the air sampling and analyses that include fan number, date of sample, location, and concentrations.

Data Elements: 117, 124

Mercury Urinalysis Records, 1954-1983

Location: 1. Active:
2. Inactive: Y-12 Records Center, Building 9711-5, Room 106

Access Restrictions: Privacy Act

Volume: 9 File Folders;
0.375 linear feet

Accession or Other ID Number: M372, M465,
M476, 19-7-6, 20-9-18, M511

Condition: Fair

Container Numbers: Drawer 7, 9-10

Medium: Paper

Scanning Suitability: Generally unsuitable for scanning; record series consists predominantly of computer printouts of monitoring reports and lists of names of program participants. Textual portions of the series, however, may be suitable for scanning.

Duplication: May be part of the unclassified collection, see statement on page 12

Arrangement: Numerical by file code

Originating Office: Radiation Safety, Health Physics, and Industrial Hygiene

Finding Aids: Y-12 Mercury Task Force Database Printout; *Mercury at Y-12* (Y/EX-24) Bibliography

Disposition Authority: Permanent Collection

Series Description: This record series contains mercury urine monitoring program records, including lists of participating employees providing the name, badge number, department number, building number, and shift information for buildings 9201-2, 9201-4, 9201-5; mercury urine control records; schedules for tests; and the results of the tests in milligrams/liter (mg/l); and correspondence pertaining to program procedures.

Data Elements: 8, 16, 31, 68

Poplar Creek Water Analysis, 1954-1960

Location: 1. Active:
2. Inactive: Y-12 Records Center, Building 9711-5 Room 106

Access Restrictions: Unclassified

Volume: 5 Folders; 0.2
linear feet

Accession or Other ID Number: M488, 19-7-6,
18-10-4, 18-10-9, 18-(file folder has
incomplete number)

Condition: Fair

Container Numbers: Drawer 9, 10

Medium: Paper

Scanning Suitability: Suitable

Duplication: May be part of
the unclassified collection, see
statement on page 12

Arrangement: Numerical by file code

Originating Office: Industrial Hygiene, Health Physics, and Nuclear Radiation Safety

Finding Aids: Y-12 Mercury Task Force Database Printout; *Mercury at Y-12* (Y/EX-24)
Bibliography

Disposition Authority: Permanent Collection

Series Description: This record series relates to sampling of surface water of Poplar Creek, Bear Creek, and the SE, NE, and NW settling pits. Correspondence relating to monitoring and letter reports are included. Sampling data includes the date of sample, alpha and beta measurements in microcuries/cubic centimeter (mc/cc), mercury measurement in milligrams/liter (mg/liter), and the total flow of waste into the river from settling tanks SE, NE, and NW (gallon/wk). The letter reports provide information on the average radioactivity in the East Fork Poplar Creek for the period 1954-1959. Radioactivity is reported for alpha and beta activity disintegrations/minute/liter (d/m/l) and mercury in mg/liter (mg/l). Total flow of effluents into the East Fork Poplar Creek is measured in gallons/week (gal/wk). Information is provided about the content of waste materials in settling tanks SE, NE, and NW.

Data Elements: 118, 124

Radiation Safety Reports, 1954-1963

Location: 1. Active:
2. Inactive: Y-12 Records Center, 9711-5 Room 106

Access Restrictions: Unclassified

Volume: 22 File Folders;
0.92 linear feet

Accession or Other ID Number: M258-260,
M265-266, M269-272, M275-276, M278-279,
M281-285, M482, M487-488

Condition: Good

Container Numbers: Drawers 5, 10

Medium: Paper

Scanning Suitability: Suitable

Duplication: May be part of
the unclassified collection, see
statement on page 12

Arrangement: Numerical by file code

Originating Office: Radiation Safety Department

Finding Aids: Y-12 Mercury Task Force Database Printout; *Mercury at Y-12* (Y/EX-24)
Bibliography

Disposition Authority: Permanent Collection

Series Description: This record series contains documents produced by the Y-12 Radiation Safety Department. The majority of these records consist of daily solvent air sampling results from October 1955 to August 1963. Mercury measurements are reported in milligrams/cubic meter (mg/m³) for buildings 9201-4, 9201-5, and 9201-2. Other records pertain to the exposure of personnel to mercury in buildings 9201-4 and 9201-5, and urinalysis reports for the period from 1954 to 1960. Documents describing the use of respirators to safeguard workers against mercury vapor and the decontamination of mercury work areas during 1956 are included.

Solvent Hazards Committee, 1955-1956: This is a subseries which evaluated air contamination data for building 9201-5 to determine if the existing ventilation system could be improved to supply greater air circulation and reduce concentration of mercury vapor. These records consist mainly of memoranda, correspondence, minutes, and copies of procedures developed by the Solvent Hazards Committee for safeguarding the workplace and workforce against mercury exposure, including statements on the use of respirators and protective clothing. Air sampling data milligrams/cubic meter (mg/m³) of mercury and urinalysis data milligrams/liter (mg/l) of mercury are included.

Data Elements: 62, 68, 75, 81, 107

Radioactive Effluent Report, 1972

Location: 1. Active:
2. Inactive: Y-12 Records Center, Building 9711-5, Room 106

Access Restrictions: Confidential/RD

Volume: 1 File Folder; 0.24 linear feet

Accession or Other ID Number: M489

Condition: Good

Container Numbers: Drawer 10

Medium: Paper

Scanning Suitability: Suitable

Duplication: May be part of the unclassified collection, see statement on page 12

Arrangement: Numerical by file code

Originating Office: Health Physics Department

Finding Aids: Y-12 Mercury Task Force Database Printout; *Mercury at Y-12 (Y/EX-24)* Bibliography

Disposition Authority: Permanent Collection

Series Description: This record series contains correspondence and a final report regarding an investigation of employee injuries and exposures at Building 9212. The correspondence covers a wide range of monitoring programs at Y-12 mainly for exposure to uranium. Two documents pertain specifically to mercury: 1) the declassification of mercury materials for the overall study, and 2) a memorandum calling for a task force study on mercury material accountability. No measurements of mercury are provided. The series also contains nonrecord material from the Environmental Protection Agency.

Data Elements: 81, 118, 124

APPENDIX A
INFORMATION REQUIRED BY THE DEPARTMENT OF ENERGY FOR
EPIDEMIOLOGIC AND HEALTH STUDIES (ORIGINAL)

DATA PERTAINING TO CONTRACTOR ORGANIZATIONS

Any type of materials that will help understand the functional organization of the contractor, or to identify individuals who may have had responsibility for operations within a facility. These types of materials are useful when studying a facility because they enable the researcher to identify key personnel who were involved with certain projects and to contact these persons, when necessary, to help understand the nature of the plant operations and potential exposures that occurred in specific areas of the plant. Examples of records that may meet these needs are:

- 1 Contractor Organizational Charts
- 2 Contractor Organizational Histories/Plant Information Packets
- 3 Mission Statements for Functional Units
- 4 Contractor Personnel Directories/Telephone Directories
- 5 Copy of all Position Descriptions and Effective Dates
- 6 Diaries, Subject Files, and Correspondence of the Facility Director

DATA PERTAINING TO INDIVIDUALS

Identification

Epidemiologic studies of workers require the creation of lists of individuals at each facility who will be included in the study. Therefore, all records containing identifying information for employees at a specific facility are of great value. These records will typically be from personnel or payroll departments and may include the following data:

- 7 Social Security Number
- 8 Name (last, first, middle)
- 9 Maiden Name
- 10 Other Names
- 11 Address (city, state, zip)
- 12 Spouse Name (last, first, middle)
- 13 Spouse Address (street, city, state)
- 14 Emergency Contact (last, first, middle, relationship)
- 15 Emergency Contact Address (street, city, state)
- 16 Employer Identification Numbers (payroll, annuity, badge, etc.)

Demographic Information

In order to compare the characteristics of the worker population with other groups, it is desirable to know the following information:

- 17 Birth Date
- 18 State (or Country) of Birth
- 19 City of Birth
- 20 Sex
- 21 Race
- 22 Education (highest degree)
- 23 Marital Status

Work History

Work records indicating the type of jobs performed over specific periods of time are extremely useful. Specific data items are as follows:

- 24 Hire Date at Facility
- 25 Last Termination Date at Facility
- 26 Reason for Termination (medical, disability, etc.)
- 27 Type of Employee (hourly, salaried, etc.)
- 28 Occupation or Job Title (all jobs titles held and associated duties)
- 29 Organization Assignments (building and/or department assignments)
- 30 Previous Work History (list of all previous employers and job titles/duties)
- 31 Work Location (facility-specific)
- 32 Military Service (branch of military, dates served, and service number)
- 33 Health-Related Leaves, Reassignments, Work Restrictions
- 34 Performance Appraisals

Medical Data

Medical records, records of treatment, incident or accident report, and company health insurance records may be useful for epidemiologic studies. Examples of the information that may be used from these records include:

- 35 Pre-Employment Periodic or Special Physicals, Including Lab Test Results
- 36 Smoking History
- 37 Alcohol/Beverage History
- 38 Pre/Post Employment Injuries/Accidents
- 39 Exposure History for Hazardous Materials
- 40 Sick Leave Records
- 41 Return to Work Examinations
- 42 Pathological Reports
- 43 Familial Illness or Mortality History
- 44 Drug/Medication Use History
- 45 Diagnostic X-rays (dental, chest, other)
- 46 Predisposing Diseases
- 47 Disease History

- 48 History of use of DTPA for Chelation
- 49 Incident or Accident Reports
- 50 Company Health Insurance Records
- 51 Workers' Compensation Claims
- 52 Identifying Information that Allows Linkage of Medical Records to Employment Record Data (i.e., name, payroll number, social security number, birth date, etc.) and to Facilities (building name, etc.)

Mortality Data (any type of information concerning death)

Many studies compare death rates in worker populations with rates in other populations. The following data items are useful:

- 53 Death Certificate
- 54 Date of Death
- 55 Cause of Death (including all listed causes and contributory conditions)
- 56 Place of Death (city, state)
- 57 Payment of a Death Benefit and Date
- 58 Vital Status at Last Known Date

External Radiation

External radiation exposure records that pertain to individual workers or to individual areas in a plant must be retained. Types of data items contained on these records are:

- 59 Estimated Whole Body Dose Due to X and Gamma Rays
- 60 Estimated Whole Body Dose Due to Neutrons
- 61 Estimated Whole Body Dose Due to Tritium
- 62 Estimated Total Whole Body Dose
- 63 Individual Film Badge Records
- 64 Individual Thermoluminescent Dosimeter Records
- 65 Partial Body or Skin Doses
- 66 Date of Each Known Exposure or Reading
- 67 Identifying Information that Allows Linkage of the External Radiation Records to Employment Record Data (i.e., name, payroll number, social security number, birth date, etc.) and to Facilities (building name, etc.)

Internal Radiation

Internal radiation exposure records for workers must be retained. Types of data items contained on these records are:

- 68 Urinalysis Testing for Radionuclides (date, indication of radionuclide, results and units)
- 69 Portal of Entry (for each radionuclide)
- 70 Analysis Type (urinalysis, whole body count, fecal analysis, etc.)
- 71 Whole Body Counting Data
- 72 Date of Each Known Exposure or Test
- 73 Any Record Confirming a Deposition

- 74 Identifying Information that Allows Linkage of the Internal Radiation Records to Employment Record Data (i.e., name, payroll number, social security number, birth date, etc.) and to Facilities (building name, etc.)

Industrial Hygiene

Chemical Exposures

Data generated to evaluate occupational exposure levels and to demonstrate compliance with exposure limits should be systematically retained. The types of records of data that should be retained may include:

- 75 Individual Blood or Urinalysis Records for Specific Chemicals (mercury, lead, etc.)
- 76 Dates of Exposures
- 77 Environmental Monitoring Data Relating to Specific Work Locations and Jobs
- 78 Concentration Readings
- 79 Sample Type (blood, urinalysis, fecal, breathing zone, general air, etc.)
- 80 Results of Units (mg/ml, ppm, mg/cubic meter)
- 81 Monitoring Characteristics (devices, times, control data, frequency, techniques, etc.)
- 82 Identifying Information that Allows Linkage of the Chemical Exposure Records to Employment Record Data (i.e., name, payroll number, social security number, birth date, etc.) and to Facilities (building name, etc.)

Physical Agents

Data generated to evaluate occupational exposure levels and to demonstrate compliance with exposure limits should be systematically retained. Such data should include:

- 83 Hazard Inventories of Potentially Health Hazardous Physical Agents (noise, laser light, electromagnetic radiation, magnetic fields, etc.)
- 84 Location and Date of the Inventory
- 85 Work Place or Area of Survey Results along with Exposure Levels
- 86 Equipment and Methods Used to Assess Hazard
- 87 Identifying Information that Allows Linkage of the Exposures to Physical Agents to Employment Records, to Medical Information and to Facilities

DATA PERTAINING TO FACILITIES

Area/Site Monitoring Information (by job category, year, building, etc.)

Other records that relate to the calibration, sensitivity, type, location of the equipment used for personnel monitoring, surveying, air sampling, etc., are quite useful, especially if they can be linked to specific processes, areas, buildings, and personnel. Information describing the general requirements followed by the facility for the provision of various personnel monitoring equipment, examinations, or testing is also desirable. Examples of these types of records include the following:

- 88 Chemical or Other Processes, by Year and Building
- 89 Hiring, Materials Handling, and Other Practices

- 90 Medical Examination Requirements for Employment/or Employment in Specific Jobs
- 91 Requirements for Wearing Dosimeters
- 92 Decontamination Data
- 93 Dosimeter Type
- 94 Dosimeter Manufacturer
- 95 Sensitivity of Testing Procedures
- 96 Dosimeter Processing Procedures
- 97 Dosimeter Reading Procedures
- 98 Frequency of Reading Dosimeters
- 99 Frequency of Analysis
- 100 Type of Monitoring System
- 101 Type of Monitoring Test
- 102 Protection Equipment Requirements
- 103 Isotopic Information
- 104 Concentration Reading
- 105 Location of Reading
- 106 Duration of Exposure Reading
- 107 Requirements for Wearing Protection Equipment
- 108 Monitoring System for Other Substances
- 109 Sensitivity Procedures
- 110 Type of Monitoring Procedures Used
- 111 Toxic Substances--Concentration Readings
- 112 Location of Toxic Substance Readings
- 113 Test Frequency
- 114 Calibration Requirements
- 115 Chemical Inventories
- 116 Information on Product Particle Sizes and Chemical Form at Potential Release Points
- 117 Details of Chemical or Other Processes in a Facility, Past as well as Current, Including Engineering Drawings of Facility
- 118 Off-Site Monitoring or Sampling Locations and Results
- 119 Any Measurements of Release Points from the Facility (e.g., stack sampler results, water losses, sump measurements)
- 120 Inventory Records of Incoming and Outgoing Material
- 121 Reports of Losses of Material from a Stack
- 122 Report of Unplanned Releases, Incidents, Spills
- 123 Maintenance Records of Pollution Control Devices, such as Dust Collectors, Scrubbers, or Filters

APPENDIX A
INFORMATION REQUIRED BY THE DEPARTMENT OF ENERGY FOR
EPIDEMIOLOGIC AND HEALTH STUDIES (REVISED)

DATA PERTAINING TO CONTRACTOR ORGANIZATIONS

Any type of materials that will help understand the functional organization of the contractor, or to identify individuals who may have had responsibility for operations within a facility. These types of materials are useful when studying a facility because they enable the researcher to identify key personnel who were involved with certain projects and to contact these persons, when necessary, to help understand the nature of the plant operations and potential exposures that occurred in specific areas of the plant. Examples of records that may meet these needs are:

1. DOE/Contractor Organizational Charts
2. Contractor Organizational Histories/Plant Information Packets
3. Mission Statements of the Site and Individual Functional Units
4. Contractor Personnel Directories/ Telephone Directories
5. Position Descriptions and Associated Dates
6. Correspondence Files of Directors and Managers

DATA PERTAINING TO INDIVIDUALS

Identification of Individual

Epidemiologic studies of workers require the creation of lists of individuals at each facility who will be included in the study. Therefore, all records containing identifying information for employees at a specific facility are of great value. These records will typically be from personnel or payroll departments and may include the following data:

7. Social Security Number
8. Name
9. Maiden Name
10. Other Names
11. Address/Phone Number
12. Spouse Name
13. Spouse Address
16. Employer Identification Numbers (payroll, annuity, badge, etc.)

Demographic Information

In order to compare the characteristics of the worker population with other groups, it is desirable to know the following information:

17. Birth Date
18. Place of Birth
20. Sex

21. Race
22. Education (highest degree)
23. Marital Status

Work History

Work records indicating the type of jobs performed over specific periods of time are extremely useful. Specific data items are as follows:

24. Hire Date at Facility
25. Termination Date at Facility
26. Reason for Termination
27. Type of Employee (hourly, salaried, etc.)
28. Occupation or Job Title (all job titles held and associated dates)
30. Previous Work History
31. Work Location (building, area)
33. Reassignments and Work Restrictions
34. Job or Task Descriptions and Performance Appraisals

Medical Data

Medical records, records of treatment, incident or accident report, and company health insurance records may be useful for epidemiologic studies. Examples of the information that may be used from these records include:

35. Employee Physical Examinations
36. Smoking History
37. Alcohol/Beverage History
44. Drug/Medication Use History
38. Record of Injuries or Accidents Before or During Employment
39. Record of Exposure to Toxic or Carcinogenic Substances
40. Record of Sick and other Health-Related Leaves
41. Return to Work Clearances
42. Pathological Reports and Lab Results
45. Diagnostic X-Rays (dental, chest, other)
43. Family Disease and Mortality History
47. Employee Disease History, Including Predisposing Conditions
48. Record of use of Chelation Agents, including DTPA
51. Workers' Compensation Claims

Mortality Data (any type of information concerning death)

Many studies compare death rates in worker populations with rates in other populations. The following data items are useful:

53. Death Certificate
54. Date of Death
55. Cause of Death
56. Place of Death
57. Payment of a Death Benefit and Date
58. Vital Status at Last Known Date

DATA PERTAINING TO INDIVIDUAL EXPOSURE ASSESSMENT

External Radiation

External radiation exposure records that pertain to individual workers or to individual areas in a plant must be retained. Types of data items contained on these records are:

59. Estimated Whole Body Dose Due to X-Rays & Gamma Rays and Associated Dates
60. Estimated Whole Body Dose Due to Neutrons and Associated Dates
61. Estimated Whole Body Dose Due to Tritium and Associated Dates
62. Estimated Total Whole Body Dose and Associated Dates
63. Individual Dosimeter Types
65. Partial Body or Skin Doses and Associated Dates

Internal Radiation

Internal radiation exposure records for workers must be retained. Types of data items contained on these records are:

68. Bioassay Testing (including fecal and urine analysis) for nuclides
69. Estimated internal doses, including nuclides, organ of deposition
71. Whole Body Counts, including nuclides, type of instrument, results, units, and associated dates

INDUSTRIAL HYGIENE

Chemical Exposures

Data generated to evaluate occupational exposure levels and to demonstrate compliance with exposure limits should be systematically retained. The types of records of data that should be retained may include:

75. Results of Bioassays (including blood and urine analysis) such as exposure to chemicals, chemical names, results units, and associated dates
77. Monitoring Data Relating to Specific Work Locations or Assignments, including monitoring instruments, control data, results, units, and associated dates

Physical Agents

Data generated to evaluate occupational exposure levels and to demonstrate compliance with exposure limits should be systematically retained. Such data should include:

83. Inventories of Potentially Health Hazardous Physical Agents (noise, laser beam, electromagnetic fields, etc.), including associated dates, building, and locations
85. Survey of Work Areas, including associated dates, kind of monitoring equipment, results, and units

DATA PERTAINING TO FACILITIES

Area/Site Monitoring Information (by job category, year, building, etc.)

Other records that relate to the calibration, sensitivity, type, location of the equipment used for personnel monitoring, surveying, air sampling, etc., are quite useful, especially if they can be linked to specific processes, areas, buildings, and personnel. Information describing the general requirements followed by the facility for the provision of various personnel monitoring equipment, examinations, or testing is also desirable. Examples of these types of records include the following:

Physical Plant and Operations Records

- 88. Chemical or Other Processes, including building locations and associated dates
- 89. Hiring, Materials Handling & Other Practices
- 90. Requirements for Employment in Specific Jobs
- 114. Calibration Requirements
- 115. Chemical Inventories
- 117. Blueprints, Floor Plans, and Engineering Drawings of Building
- 120. Inventory Records of Incoming and Outgoing Material
- 123. Maintenance Records of Pollution Control Devices such as Dust Collectors, Scrubbers, or Filters

Worker Radiation Monitoring/Protection Programs

- 81. Monitoring Program Characteristics
- 91. Requirements for Wearing Dosimeters
- 93. Dosimeters Type
- 94. Dosimeter Manufacture
- 96. Dosimeter Processing Procedures
- 97. Dosimeter Reading Procedures
- 98. Frequency of Reading Dosimeters
- 102. Requirements for Use of Protection Equipment
- 107. Requirements for Wearing Protection Equipment

Environmental Monitoring

- 103. Results of Environmental Monitoring, including radionuclide or chemical information, units, and location
- 116. Information on Product Particle Size and Chemical Form at Potential Release Points
- 124. On-Site Monitoring or Sampling Locations and Results
- 118. Off-Site Monitoring or Sampling Locations and Results
- 119. Any Measurements of Effluents from Facility Relief Point, including stack sampler results, water losses, and sump measurements
- 121. Reports of Losses of Material from stack or filters
- 122. Reports of Unplanned Releases, Incidents, Spills

INDEX TO RECORD SERIES

Alloy and Mercury Solvent Loss Study - Alpha 5, October 1957	27
Alloy Division Monthly Progress Reports, 1955-1961	17
Alloy Division Weekly Progress Reports, 1955-1959	18
Bio-Analytical Control Sample Results, 1974	33
DOE-OR Public Reading Room Collection, 1994	15
Health Physics Hygiene Progress Reports, 1949-1953	34
Mercury Accounting and Budget Records, 1949-1977	28
Mercury At Y-12: A Study of Mercury Use at the Y-12 Plant, Accountability, and Impacts on Y-12 Workers and the Environment-1950 to 1983, 1983	14
Mercury Flask Data, 1962-1979	30
Mercury Flasking and Storage, 1970-1975	29
Mercury Inventory and Flasking Reading File, 1962-1968	31
Mercury Losses to East Fork Poplar Creek, 1955-1982	35
Mercury Shipment Data, 1955-1982	32
Mercury Solvent Air Sampling Records, 1954-1959	36
Mercury Urinalysis Records, 1954-1983	37
Poplar Creek Water Analysis, 1954-1960	38
Quarterly Technical Progress Report Y-12 Plant, 1959-1975	19
Radiation Safety Reports, 1954-1963	39
Radioactive Effluent Report, 1972	40
Technical Division Monthly Progress Reports, 1955-1958	20
Technical Memoranda, 1953-1982	21
Technical Reports, 1953-1982	22
Y-12 Mercury Task Force Data Base Printouts	16
Y-12 Plant Quarterly Report, 1952-1981	24
Y-12 Production/Operation Records, 1955-1963	25