Summary of the Hanford Site Decontamination, Decommissioning, and Cleanup FY 1974 through FY 1990

OCT 17 1991

Prepared for the U.S. Department of Energy
Office of Environmental Restoration and
Waste Management

Westinghouse
Hanford Company Richland, Washington

Hanford Operations and Engineering Contractor for the
U.S. Department of Energy under Contract DE-AC06-87RL10930

Approved for Public Release

DISTRIBUTION OF THIS DOCUMENT IS UNLIMITED

LEGAL DISCLAIMER

This report was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, nor any of their contractors, subcontractors or their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or any third party's use or the results of such use of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof or its contractors or subcontractors. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.

This report has been reproduced from the best available copy.
Available in paper copy and microfiche.

Available to the U.S. Department of Energy
and its contractors from
Office of Scientific and Technical Information
P.O. Box 62
Oak Ridge, TN 37831
(615) 576-8401

Available to the public from the U.S. Department of Commerce
National Technical Information Service
5285 Port Royal Road
Springfield, VA 22161
(703) 487-4650

Printed in the United States of America

Summary of the Hanford Site Decontamination, Decommissioning, and Cleanup FY 1974 Through FY 1990

R. K. Wahlen

Date Published
August 1991

Prepared for the U.S. Department of Energy
Office of Environmental Restoration and
Waste Management

**Westinghouse
Hanford Company**

P.O. Box 1970
Richland, Washington 99352

Hanford Operations and Engineering Contractor for the
U.S. Department of Energy under Contract DE-AC06-87RL10930

Approved for Public Release

MASTER

DISTRIBUTION OF THIS DOCUMENT IS UNLIMITED

pd

LEGAL DISCLAIMER

This report was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, nor any of their contractors, subcontractors or their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or any third party's use or the results of such use of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof or its contractors or subcontractors. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.

This report has been reproduced from the best available copy. Available in paper copy and microfiche.

Available to the U.S. Department of Energy
and its contractors from
Office of Scientific and Technical Information
P.O. Box 62
Oak Ridge, TN 37831
(615) 576-8401

Available to the public from the U.S. Department of Commerce
National Technical Information Service
5285 Port Royal Road
Springfield, VA 22161
(703) 487-4650

Printed in the United States of America

DISCLM-1.CHP (1-91)

Document Title: Summary of the Hanford Site Decontamination,
Decommissioning, and Cleanup
FY 1974 through FY 1990

Environmental Restoration Program

Prepared by: R. K. Wahlen 8-28-91
R. K. Wahlen ^{aka}
Principal Engineer Date

Reviewed by: [Signature] 8-27-91
for M. C. Hughes, Manager
Surplus Facilities and
RCRA Closures Program Date

Approved by: [Signature] 8-27-91
for M. C. Hughes, Manager
Surplus Facilities and
RCRA Closures Program Date

**SUMMARY OF THE HANFORD SITE DECONTAMINATION,
DECOMMISSIONING, AND CLEANUP
FY 1974 THROUGH FY 1990**

ENVIRONMENTAL RESTORATION PROGRAM

R. K. Wahlen

ABSTRACT

At the end of World War II, the demand for more production along with process and military surveillance changes at the Hanford Site caused a continuing cycle of building and obsolescence. This trend continued until 1964, when the cutback in plutonium production began. The cutback caused the shutdown of excess production facilities. The last of eight reactors was shut down in 1971. Since that time, N Reactor has been the only production reactor that has operated. In addition, changes in the method of separating plutonium caused a number of excess facilities in the 200 Areas.

Before 1973, no structured program existed for the disposal of unusable facilities or for general cleanup. Following a plant-wide safety and housekeeping inspection in 1973, a program was developed for the disposal of all surplus facilities. Since the start of FY 1974, a total of 46 radioactively contaminated structures have been demolished and disposed of. In addition, 28 buildings have been decontaminated for in situ disposal or for reuse, 21 contaminated sites have been stabilized, 131 clean structures have been removed, and 93 clean sites have received special remedial action to eliminate potential safety and/or environmental hazards. This report summarizes these activities.

CONTENTS

1.0	INTRODUCTION	1
2.0	PURPOSE	2
3.0	SCOPE	3
4.0	INFORMATION SOURCES	3
4.1	FISCAL YEAR 1974	3
4.1.1	P-11 Facility	4
4.2	FISCAL YEAR 1975	4
4.2.1	Brief History of Major Facilities	5
4.3	FISCAL YEAR 1976	5
4.4	FISCAL YEAR 1977	5
4.5	FISCAL YEAR 1978	5
4.5.1	141-F Biological Laboratory	6
4.6	FISCAL YEAR 1979	6
4.6.1	Public Sales	6
4.7	FISCAL YEAR 1980 AND FISCAL YEAR 1981	6
4.8	FISCAL YEAR 1982	7
4.9	FISCAL YEAR 1983	7
4.10	FISCAL YEAR 1984	7
4.11	FISCAL YEAR 1985	8
4.12	FISCAL YEAR 1986	8
4.13	FISCAL YEAR 1987	8
4.14	FISCAL YEAR 1988	8
4.15	FISCAL YEAR 1989	8
4.16	FISCAL YEAR 1990	8
5.0	REFERENCES.	8
APPENDIXES:		
A.	PHOTOGRAPHS	A-1
B.	INDEX OF PHOTOGRAPHS	B-1

LIST OF FIGURES

1	Expenditure by Year for Decontamination, Decommissioning, and Cleanup at the Hanford Site	4
---	---	---

LIST OF TABLES

1	Summary of Sites and Cost by Fiscal Year	T-1
2	Work Performance in Fiscal Year 1974	T-2
3	Work Performed in Fiscal Year 1975	T-3
4	Work Performed in Fiscal Year 1977	T-4
5	Biological Facilities Cleanup List	T-6
6	Work Performed in Fiscal Year 1978	T-7
7	Work Performed in Fiscal Year 1979	T-9
8	Decontamination and Decommissioning Program in 1979	T-10
9	Site Cleanup Accomplishments	T-11
10	Salvage Operation	T-11
11	Work Performed in Fiscal Year 1983	T-12
12	Work Performed in Fiscal Year 1984	T-14
13	Work Performed in Fiscal Year 1985	T-16
14	Work Performed in Fiscal Year 1986	T-17
15	Work Performed in Fiscal Year 1987	T-19
16	Work Performed During Fiscal Year 1988	T-20
17	Work Performed During Fiscal Year 1989	T-21
18	Work Performed During Fiscal Year 1990	T-22

**SUMMARY OF THE HANFORD SITE DECONTAMINATION,
DECOMMISSIONING, AND CLEANUP
FY 1974 THROUGH FY 1990**

1.0 INTRODUCTION

In the transition from a farming community to a restricted industrial site dedicated to the national nuclear program, three townsites and a number of family farms were converted to a new mission. Two of the townsites, Hanford and White Bluffs, and the adjacent farmlands were abandoned. The townsite of Richland was expanded with new housing, schools, recreational facilities, clothing stores, grocery stores, and utility services to support the major portion of the work force required to operate the nuclear site.

All of the old farmhouses and business structures that were not useable and/or condemned to make room for new facilities were either sold to salvage operators or demolished. In addition, with a few exceptions, the temporary construction facilities were sold to salvage operators and were removed from the Hanford Site. The relatively few temporary construction buildings that remained were upgraded and used in support of Site operations.

Following World War II, the demand for more production, along with process and military surveillance changes at the Hanford Site caused a continuing cycle of building and obsolescence. This trend continued until 1964, when the cutback in plutonium production began. The cutback caused the shutdown of excess production facilities, one by one, until the last of eight reactors was shut down in 1971. Since then, N Reactor has been the only production reactor in operation. At the present time, it is in dry layup and is being considered for excess. In addition, changes in the process of separating plutonium and cutbacks in production resulted in a number of excess facilities in the 200 Areas.

The first three reactors completing their mission (DR, F, and H) were declared excess immediately after shutdown, making all the buildings and equipment available for use on other government programs. Facilities that could not be used were disposed of under controlled conditions. Some of the office buildings were moved to other operating areas on the Hanford Site. Others were converted to new programs or used as storage buildings. The remaining wooden buildings, not radiologically contaminated, were sold at a public sale and removed from the Hanford Site. The process equipment inside the noncontaminated facilities was sold at a public sale to salvage operators, who dismantled the equipment and removed it for resale. This same procedure has been followed in each deactivated excess facility. Since the K Reactors were the last to be shut down, a portion of the K facilities has been used in support of N Reactor operations, and as a result the salvage work at 100 K Area has been minimal.

Over the past 45 yr, the 200 Areas have seen the construction and operation of several generations of facilities for chemical processing of irradiated fuel elements, plutonium and uranium processing and fabrication, and waste management, plus supporting laboratories and other ancillary

facilities. In the early separations operations, the bismuth phosphate process, also known as the batch-precipitation method, was used to separate the plutonium from the spent fuel. This process was performed in the large B and T Plants. In 1952, the separations process was changed. The new process, which replaced the batch-precipitation method, was designated REDOX (reduction-oxidation). The process, which removed the plutonium using organic extraction in countercurrent columns, was performed in the 202-S Canyon Building. The process continued until 1967, when a new facility was built and the separations operation was improved to the current PUREX (plutonium-uranium extraction) separations process. The U Plant was constructed during 1944 and 1945 to perform the same work as B and T Plants, but it was not required for that purpose. After extensive modifications, the U Plant was used from 1952 through 1958 to extract uranium from the high-level waste in underground storage tanks. During 1954 and 1955 a plutonium concentration facility, 233-S Building, was built and started operating in March 1955. In 1962 the operations were expanded to include neptunium concentration and load out, along with an ion-exchange purification process. This facility was shut down and deactivated in 1967. There are many contaminated and surplus ancillary facilities associated with each of these operations. Some have been decontaminated and used in other programs. The PUREX Separations Plant, the Plutonium Finishing Plant, and several waste management operations are still active.

In the early 1970's, a routine plant-wide safety and housekeeping inspection focused on the remnants left on the farms and on the deteriorating production facilities. Because of this inspection, a program was developed to eliminate "public nuisances" and hazardous items, and to reduce surveillance costs at retired facilities. To accommodate a difference in budget responsibility, it was necessary to develop two cleanup programs. One was called, the "Hanford Site Cleanup" program and the second was called, "Decontamination and Decommissioning." The Hanford Site Cleanup program was dedicated to facilities that were free of radioactive contamination. The Decontamination and Decommissioning program was dedicated to facilities contaminated with radioactivity. These safety and housekeeping inspections continued. Significant progress has been made in eliminating many hazards, in presenting an improved safety posture, and in saving considerable money by reducing the inventory of facilities requiring surveillance and maintenance. Since the start of fiscal year (FY) 1974 a total of 46 radioactively contaminated structures have been demolished and disposed of. In addition, 28 buildings have been decontaminated for in situ disposal or for reuse, 21 other contaminated sites have been stabilized, 131 clean structures have been removed, and 93 other clean sites have received special remedial action to eliminate potential safety and/or environmental hazards.

2.0 PURPOSE

The purpose of this report is to present a brief historical summary of the Hanford Site Cleanup and Decontamination and Decommissioning programs. The first major effort on the Hanford Site cleanup began in 1974 at the 100 H Area, when a large number of clean facilities were demolished. Before

this, no programmed effort was made to dispose of excess structures and the lack of records prohibit an accurate account earlier than 1974.

3.0 SCOPE

This report covers the period of 1974 through 1990. Table 1 summarizes, by fiscal year, the number, classification and cost of the facilities completed during the period. A more detailed summary of the cleanup, decontamination, and decommissioning is presented in chronological order in the pages that follow.

The figure number column in each of the tables refers to photographs of the respective subjects. The figures are located in Appendix A. For the "before and after" photos for each of the 100 Areas, see Figures A-1 through A-11. There has been significant site cleanup in all areas on the Hanford Site, however, so many facilities have been added to the 200 and 300 Areas that "before and after" photos would not be meaningful. The 600 Area is too large an area to cover with a "before and after" photograph. Only one photograph of like facilities is used to typify work accomplished. For example, the powerhouse smoke stacks in 100 B/C, D/DR, F, and H (a total of nine smoke stacks) were demolished and only one photograph is used to represent all nine of the identical stacks. This was done to reduce the volume of the report.

4.0 INFORMATION SOURCES

The summary of work accomplishments, shown in the tables for each year, was taken from the site cleanup records maintained by the Surveillance and Maintenance Group through FY 1979. The information from FY 1980 through FY 1990 was taken from the engineering files in Decontamination and Decommissioning (D&D) Engineering. The total cost of the work performed each year is a summation of each work element and may not include all overhead costs. However, it is felt that the cost values shown are accurate to within plus or minus five percent. The expenditures by fiscal year are shown in the introduction of each year. This expenditure information is summarized in Figure 1.

4.1 FISCAL YEAR 1974

Two separate programs were in progress during FY 1974, one was managed by United Nuclear Corporation (UNC) and the other by Atlantic Richfield Hanford Company (ARHCO). The UNC program was confined to the cleanup of facilities in 100 H Area. The ARHCO program covered the general cleanup of old farm buildings and hazardous sites left by the military at the various Nike and antiaircraft sites. A total of \$370,000 was spent in the work done at 100 H and \$125,900 in the work done by ARHCO. The work is summarized in Table 2.

4.1.1 P-11 Facility

A plutonium criticality laboratory consisting of a single-story sheet-metal building with experimental cells and a laboratory waste-disposal crib was located about midpoint between the Hanford townsite and the 100 F Area.

Figure 1. Expenditure by Year for Decontamination, Decommissioning, and Cleanup at the Hanford Site.

The facility operated during 1950 and 1951. A criticality excursion occurred on November 16, 1951 that caused extensive contamination of the building. On December 4, 1951 a fire that started by spontaneous combustion occurred within the building. The radiological contamination was fixed and the building was sealed following the fire. In April 1974, a cleanup project was implemented on the facility. The contaminated equipment and structures were packaged in 20-yr-retrievable containers. The containers were placed in transuranic waste-disposal facilities in the 200 West Area burial grounds. The project cost \$265,000. See Figures A-49 and A-50 in Appendix A.

4.2 FISCAL YEAR 1975

A small amount of the cleanup work scheduled to be completed in FY 1974 was carried over into 1975. Major accomplishments are shown in Table 3. A total of \$138,800 was spent to accomplish this work.

4.2.1 Brief History of Major Facilities

1. The cold storage facility at White Bluffs was used in preproject days by the farmers for the storage of fruit and the production of ice. The facility was abandoned at the beginning of the nuclear program at the Hanford Site. The facility was empty until 1975, when it was demolished to eliminate a potential industrial hazard.
2. 1705-F consisted of a quonset building used for plutonium inhalation studies and tissue ashing. The greenhouse and fenced area were used for effluent studies on plant life. The adjacent fish ponds and valve pit were used for aquatic studies. All were slightly radiologically contaminated. Decommissioning work started in May 1975 and was completed the following month at a cost of \$29,218. The contaminated structures and equipment were removed, packaged, and buried in the 200 West Area burial ground. Noncontaminated waste was placed in the 182-H Reservoir, which was later demolished and backfilled.

4.3 FISCAL YEAR 1976

No itemized record exists of the work performed in 1976. Records indicate that \$125,000 was authorized to be spent on site cleanup and the work accomplished is summarized in a short paragraph as follows: "Continued cleanup along the Columbia River but further inland--such as abandoned farm wells, root cellars, barbed wire fences, junk, etc., removed and backfilled. Completed nonradioactive facilities at 100 H."

4.4 FISCAL YEAR 1977

The two main objectives of the work performed in 1977 are listed as: (1) correct potential radiological and safety hazards in the retired and standby facilities in the 100 Areas and (2) remove noncontaminated equipment and structures in the 100 Area facilities. A total of \$938,500 was spent on the 100 Area program in 1977. Table 4 contains a list of the work performed.

There were several buildings located in 100 F Area that were used by Pacific Northwest Laboratories (PNL) for biological studies. The facilities were commonly referred to as "the Animal Farm." Nine of these buildings were included in the site cleanup program in 1977. Varying degrees of low-level radioactive contamination was removed from buildings both prior to and during demolition. All detectable contamination was packaged and disposed of in the 200 West Area burial grounds. A listing of the facilities appears in Table 5.

4.5 FISCAL YEAR 1978

Work continued on the site cleanup program in the 100, 200, 300, and 600 Areas during FY 1978. A total of \$461,800 was spent on the work listed in Table 6.

4.5.1 141-F Biological Laboratory

This facility was abandoned when PNL moved their biological studies to the 300 Area. The components, equipment, and portions of the building were radiologically contaminated with ^{226}Ra and $^{239/240}\text{Pu}$. Before the building could be accepted into the Surplus Facilities Program, it had to be decontaminated. Pacific Northwest Laboratories issued a work order for \$92,000 to clean and decontaminate the building. The work was managed by UNC and was performed by J. A. Jones. The laboratory hoods and all exhaust ducts were filled with foam and cut in sections, packaged, and buried at the 200 West Area burial ground. All the contaminated tile, sections of roof, side walls, and the concrete floor were removed, packaged, and disposed of in the 200 West Area burial ground. The building was surveyed and unconditionally released for demolition to be done at a later date. See Figure A-83.

4.6 FISCAL YEAR 1979

There were four distinct activities in FY 1979 directed toward accomplishing the two main objectives of the Site cleanup effort of reducing potential radiological and industrial safety hazards and removing surplus equipment and structures from the Hanford Site. The four activities were the following.

1. A cyclone fence was installed around all the 107 retention basins and the existing 1904 outfall structures to prevent inadvertent entry into radiation zones. With the opening of the Hanford reach section of the Columbia River to the public, these were easily accessible. The cost of this project was \$217,000. See Figure A-86.
2. Several surplus buildings and associated equipment were sold as excess. The buildings and equipment were removed by the salvage operator. A total revenue of \$137,000 was generated from these sales.
3. A total of \$527,300 was spent on the Hanford Site Cleanup Program. The work accomplished is listed in Table 7.
4. A total of \$278,700 was spent on the Decontamination and Decommissioning Program. The work accomplished is listed in Table 8.

4.6.1 Public Sales

Examples of the facilities sold at a public sale to various salvage operators are shown in Figures A-14, A-16 through A-23, and A-101.

4.7 FISCAL YEAR 1980 AND FISCAL YEAR 1981

Budget appropriations were tight in fiscal years 1980 and 1981. Plans to start piece-by-piece dismantlement of the 105-F Reactor in FY 1983 were not

realized. Consequently all funding for cleanup in these years was used for engineering, design, and planning for this effort. Cleanup was limited to the Surveillance and Maintenance Program in the 100 Areas. The only nonroutine cleanup was the completion of decontaminating the 233-S Building, which was started in FY 1978.

4.8 FISCAL YEAR 1982

In FY 1982 the site cleanup work performed by the plant forces totaled \$137,400. There were three main items which are listed in Table 9. In addition to the plant forces work, there were major salvage operations in progress which netted a revenue of \$222,100. See Table 10. Also, 1.1 km (0.7 mi) of outer perimeter fence was removed at 100 H and transferred to the Federal Fish and Game Department, Leavenworth, Washington. The Moses Lake School District obtained 90,000 board feet of redwood baffle boards from the 183-C sedimentation basins.

4.9 FISCAL YEAR 1983

In FY 1983, the decommissioning activities increased because of an anticipated higher funding level that would make possible decommissioning work on the excess production reactors and the 201-C Strontium Semiworks Complex. The work force assigned to these activities was increased. The emphasis was placed on the engineering and planning. With the formalization of a relatively small decommissioning operations crew, a sizeable amount of decommissioning work was accomplished on the reactor ancillary facilities and general Hanford Site cleanup. The work accomplished is listed in the Table 11. The total expenditures on the decommissioning/cleanup work was \$3,019,000.

4.10 FISCAL YEAR 1984

A major decommissioning effort was started in FY 1984 with the work on the Strontium Semiworks as the largest undertaking. The Strontium Semiworks consisted of eleven facilities and associated cribs. Buildings 215-C and 276-C were decontaminated for reuse, 291-C, 291-C-1, 296-C-2, 271-C, and 2707-C were dismantled and buried in the 200 West burial ground. The 201-C Building was dismantled to 3 m (10 ft) above grade and entombed in place. The 241-CX-70, -71, and -72 received decommissioning and stabilization work. The project has received various levels of decommissioning activity from 1984 through 1990. These activities are listed year by year in the following tables. See Figures A-108 and A-109 for the way the Strontium Semiworks looked before and after decommissioning.

In addition, a number of other site cleanup and decommissioning activities were in progress in FY 1984. These are listed in Table 12. The cost for the work listed in FY 1984 was \$3,844,000.

4.11 FISCAL YEAR 1985

The total expenditures for site cleanup and decommissioning in FY 1985 was \$6,120,000. The major portion of this total, \$3,414,000 was due to the irradiated-fuel-storage-basin cleanup. The work accomplished in FY 1985 is listed in Table 13.

4.12 FISCAL YEAR 1986

Site cleanup and decommissioning work continued at 12 separate locations. Total expenditures in FY 1986 were \$4,203,000, which is significantly lower than FY 1985. The work accomplished is listed in Table 14.

4.13 FISCAL YEAR 1987

The total expenditures for site cleanup and decommissioning work in FY 1987 were \$3,181,000. The work accomplished is shown in Table 15.

4.14 FISCAL YEAR 1988

The funding for the site cleanup and decommissioning work was \$3,193,700 in FY 1988. The work accomplished is shown in Table 16.

4.15 FISCAL YEAR 1989

There were six separate site cleanup and decommissioning accomplishments during FY 1989. These are shown in Table 17. A total of \$2,451,500 was spent in accomplishing this work.

4.16 FISCAL YEAR 1990

The primary site cleanup and decommissioning work performed in FY 1990 was asbestos removal and preparatory work for completing the decommissioning of the Strontium Semiworks Complex. A summary of accomplishments are listed in Table 18. The total cost of this work was \$1,806,000.

5.0 REFERENCES

DOE, 1991, *National Environmental Policy Act Compliance Program*, DOE Order 6430.1D, U.S. Department of Energy, Washington, D.C.

DOE-RL, 1987, *Implementation of the National Environmental Policy Act at Richland Operations Office*, DOE-RL Order 5440.1A, U.S. Department of Energy Field Office, Richland, Richland, Washington.

NEPA, 1969, *National Environmental Policy Act of 1969*, as amended,
42 USC 4321, et seq.

Table 1. Summary of Sites and Cost by Fiscal Year.

Fiscal year	Contaminated			Not contaminated		Total	Cost (\$)
	Structures		Other	Structures	Other		
	Demolished	Decon ^a					
1974	2	-0-	-0-	37	26	65	496,000
1975	2	-0-	-0-	1	11	14	138,800
1976	-0-	-0-	-0-	-0-	12	12	125,000
1977	7	6	5	22	3	43	938,500
1978	-0-	3	3	23	12	41	461,800
1979	7	-0-	2	11	13	33	1,073,000
1980	-0-	-0-	-0-	-0-	-0-	-0-	-0-
1981	-0-	-0-	-0-	-0-	-0-	-0-	-0-
1982	-0-	-0-	-0-	2	5	7	137,400
1983	9	1	1	2	-0-	13	3,019,000
1984	5	6	4	1	-0-	16	3,844,000
1985	2	3	3	-0-	2	10	6,120,000
1986	5	4	1	1	2	13	4,203,000
1987	3	1	-0-	3	2	9	3,181,000
1988	2	2	-0-	3	3	10	3,193,700
1989	2	1	-0-	24 ^b	-0-	27	2,451,500
1990	-0-	1	2	1	2	6	1,806,000
Totals	46	28	21	131	93	319	31,138,700

^aDecon = Decontaminated.^bIncludes 22 underground storage tanks.

Table 2. Work Performance in Fiscal Year 1974.

Location	Work performed	Figure number
181-H river pumphouse	Phase I demolition to ground level	A-12
1906-H drainage lift station	Demolished to ground level and backfilled	None
General area cleanup	Includes the 184 powerhouse smokestacks, boiler foundations, coalpit retaining wall, footing foundation, and floor slabs of 11 service buildings, overhead steamlines and support poles	A-13 and A-14
190-H Building	General cleanup inside and outside. Hazards left by the salvage operators were eliminated	A-23
1713-H Warehouse and 1717-H Maintenance Shop	General cleanup	A-15 and A-19
182-H Reservoirs and pumphouse	Demolished and backfilled to ground level	A-24
1908-H effluent monitoring station	Demolished and buried in the 200 West Area burial grounds	None
183-H Headhouse, sedimentation basins, and filter buildings	Demolished and backfilled to ground level. Four bays of the sedimentation basins were left in place to be used as a solar evaporation facility	A-25 through A-28
Farmsites	There were 33 different sites that were included in the farm locations. The work included demolition of small old farm structures, root cellars, wells, foundations, piles of old lumber	A-29 through A-41
Nike sites	Extensive cleanup of debris left by the military following demolition of their facilities	A-42 through A-46
Antiaircraft installations	Closure of wells and general cleanup following abandonment of these installations	A-47 and A-48

Table 3. Work Performed in Fiscal Year 1975.

Locations	Work performed	Figure number
Continue cleanup along the Columbia River	Removed old farm structures and demolished irrigation flumes	A-51 through A-54
General Hanford Site	Demolished preproject facilities	A-29 through A-41
White Bluffs townsite	Demolished and buried in place the cold storage and gas station facilities. Filled and covered water wells	A-55
100 F Area	Demolished 1705-F and surrounding facilities	A-56 and A-57

Table 4. Work Performed in Fiscal Year 1977. (sheet 1 of 2)

Location	Work performed	Figure number
Wells on Nike sites	Shafts were filled with earth and concrete boxes demolished and covered in place	A-75
Wahluke Slope schoolhouse	Demolished and buried in place. The steps to the school were left in place to preserve a geographic survey medallion.	A-76
Farm buildings across the river from 100-B	Demolished and buried in place	A-29 through A-41
100-K mile-long trench	Earth with rock was placed on the contaminated areas to bring the total cover depth to 1.2 m (4 ft)	A-58 and A-59
107-B retention basin	Graded along the outside walls of the basin and covered contaminated soil with 1.2 m (4 ft) of earth. Also added 0.5 m (18-20 in.) of earth to the inside of the basin to stabilize the contamination.	A-60 and A-62
100-C liquid waste disposal trench	Approximately 0.6 m (2 ft) of earth was placed on top of the trench area to stabilize contamination	A-61
107-C retention basin	Approximately 1.2 m (4 ft) of soil was placed on the contaminated soil inside the basins	A-62
107-DR liquid waste trench	Approximately 0.6 m (2 ft) of earth was placed on the trench area to stabilize contamination	A-61 and A-62
184-F boiler stacks	Used explosives to topple the stacks into a trench. Stacks were covered with backfill.	A-13 and A-14
183-F filter building	The building was demolished and the debris was used to fill the basement of the 183 Building	A-25 and A-26
183-F Headhouse, filter building, and sedimentation basins	The building and basins were demolished. The debris was used to fill the below-grade portions of the facility, with the remainder used as fill in the 182 Reservoir.	A-25 and A-26
182-F Reservoir	The pumping station was demolished and the rubble buried in place. The reservoir was backfilled with debris from other building demolitions and covered with fill from adjacent land.	A-24

Table 4. Work Performed in Fiscal Year 1977. (sheet 2 of 2)

Location	Work performed	Figure number
181-F river pumphouse	The building was demolished to ground level. Most of the debris was buried in the pump wells. The roofing and wood was buried in the 181 Reservoir and the asbestos was packaged and disposed of in the 200 Area asbestos burial site.	A-12
185, 189, 190-F Complex	A corner of the 185 section was used by Combustion Engineering, Incorporated to retube the 100 N steam generators and was contaminated. This portion of the building was removed and buried in the 200 Area burial ground. The remainder of the complex was demolished with explosives and a demolition ball. The steel framing and copper wire was salvaged and sold at a public sale. The rubble was used as fill in the reservoir.	A-23
151-F electrical distribution	The building and switch yard were demolished and the debris was buried in the basement cavity	A-63
Service buildings	There were five service buildings that were wood-frame construction that were demolished and buried in the 182 Reservoir	A-16 through A-20
103-F non-irradiated fuel storage	The building was demolished and the debris used as fill in the 182 Reservoir	A-64
190-H pumphouse	The building was demolished and the debris was placed in the 183-H clearwell	A-23

Table 5. Biological Facilities Cleanup List.

Location	Work performed	Figure number
144-F animal pens	Decontaminated, demolished and buried in the 182 Reservoir	A-65
144-N kennels	Same as above	A-66
144-R animal barn and 141-N refuse disposal	Same as above	A-67 and A-68
141-G Building	Same as above	A-69
141-P Building and connecting pens	Same as above	A-70
141-F Building and associated pens	Same as above	A-71
141-H Building and portable animal shelters	Same as above	A-72
145-F underground vault	This was a clean facility and was buried in place	A-73
141-L hay barn	This was a clean facility and was demolished and buried in the 182 Reservoir	A-74

Table 6. Work Performed in Fiscal Year 1978. (sheet 1 of 2)

Location	Work performed	Figure number
Several old construction dump sites in the 600 Area	Shallow land-burial trenches were excavated, trash was buried and backfilled	A-52
Igloos located west of the 200 West Area	There were seven structures shaped like quonset huts with thick concrete ends. A berm covered each structure. Six were uncovered, dismantled and removed by Whatcom County. The seventh one, which had been used to store contaminated equipment, was decontaminated, demolished, and buried in place.	A-77
108-F biological laboratory	The original water-treatment and testing lab was expanded and remodeled to serve as a biological laboratory by PNL. When it was vacated in the mid 1970's, the fixtures and gloveboxes were highly contaminated with ^{239}Pu , ^{90}Sr , and other radioactive isotopes. The loose material was removed and the contamination was stabilized. The contaminated material that was removed was packaged and disposed of in the 200 Area.	A-78
108-D mechanical development laboratory	This original water-treatment and testing laboratory was converted to a mechanical development laboratory to serve the needs of all the reactor facilities. The building was demolished and the rubble was disposed of in the 184-D coalpit.	A-79
184-D powerhouse stacks (3)	The stacks were demolished using explosives. The stacks fell on the ground and were pushed into the coalpit.	A-13 and A-14
1907-DR outfall	The outfall structure was demolished using a demolition ball. The area was covered and leveled to blend in with the adjacent riverbank.	A-53
151-H electrical switchyard and distribution	The building was demolished. The debris was placed in the basement cavity and covered with earth. The switchgear was reused in 151-B.	A-63
1719-D, 1717-D, and 1716-D service buildings	These wooden buildings were dismantled and removed by salvage operators. Waste generated from the dismantling was buried in the 184-D coalpit.	A-16, A-19, and A-20

Table 6. Work Performed in Fiscal Year 1978. (sheet 2 of 2)

Location	Work performed	Figure number
183-DR Headhouse, filter building, and sedimentation buildings	Demolished using a demolition ball. Debris was buried in the pump well and sedimentation basins and then covered with earth.	A-25 through A-28
Hanford townsite	A brick building, used by the Hanford Patrol for an arsenal, was sold to a salvage operator and was removed. The foundation was demolished and buried in place.	A-81
Hanford townsite	The foundation from the 101 Construction Building was demolished and buried in place	A-82
Old farmsites	A number of irrigation flumes were demolished and buried in place	None
100 D Area	Steamline poles were removed and sold at a public sale. The anchor blocks were pulled out of the ground and buried in the 184-D coalpit.	A-22 and A-107
300 Area	Uranium contamination was detected on the ground surface over the aluminum-silicate burial site outside the 300 Area. Approximately 1.2 m (4 ft) of soil was added over the burial site.	None
233-S REDOX Plutonium Concentration Building	Extensive decontamination and housekeeping was done outside the building and also in the change room, control room, can-storage room, and product removal (PR) can-storage room	A-128
181-F and -H river pumphouse	The building foundations, pump wells, and concrete aprons were demolished and covered with earth fill to blend in with the adjacent river bank.	A-12

Table 7. Work Performed in Fiscal Year 1979.

Locations	Work performed	Figure number
144-F Biology Building	The building was demolished and was buried in 183-F clear wells	A-83
100-K burial ground (118-K-1)	100-K burial ground was the last of the 100 Area burial grounds closed. To meet the closure requirements, 1.2 m (4 ft) of earth was placed over the entire burial ground.	A-84
100-K steel retention basins	The radioactively contaminated scale and iron oxide that formed on the inside of the tanks was removed, packaged, and buried in the 200 Area	A-85
186-D Building	This was an original one-of-a-kind building, designed and constructed as a demineralization plant. The building was not required for its designed purpose and was used for dead storage throughout its 35 yr history. The building was demolished and buried in place.	A-87
1904-B, 1904-F and 1908-K out-fall overflow flumes	The vertical walls were broken down and the walls and bottom of the flumes were covered with earth	A-88
1704, 1707, 1716, 1717, and 1719-D Buildings	Following the salvage operation of these wooden buildings, the foundation and floor were broken up and buried in the 184-D coalpit	A-15 through A-21
600 Area construction dump site	The debris from two sites, one near D Area and one near F Area, was hauled to the 100-H clear well for disposal. The riverbank was graded to blend with the contour of the adjacent bank.	None
600 Area (Proximity of Gable Mountain)	Three old farm structures and a basement from a fourth site were demolished and buried in place	A-89 through A-92
183-C sedimentation basins	All equipment with a resale value was removed in preparation for demolition at a later date.	A-27
184-B powerhouse	Electrical service and underground water services were removed in preparation for smokestack demolition at a later date.	A-13 and A-14
All 100 Areas	There were a number of potential safety hazards because of the large amount of salvage work that had been done in the post shutdown years. Some of the hazards consisted of subsidence, where holes had been filled, and concrete pedestals, where tanks had been removed.	None

Table 8. Decontamination and Decommissioning Program in 1979.

Locations	Work performed	Figure number
300 Area, 303-L oxide burner	Uranium oxide was a recoverable waste generated in the process of fuel manufacturing. The oxide had to be shipped offsite for processing. Before it could be shipped, the "free metal" content had to be reduced to a very low level because of the pyrophoric nature of the free metal. The reduction took place in the oxide burner. When this facility became excess, it was decontaminated, dismantled, packaged, and disposed of in the 200 West Area burial ground.	A-94 and A-95
100-F effluent lines	Approximately one half of the reactor effluent line from 105-F to the 107 basin was located aboveground. About 90% of the aboveground line was removed and placed in temporary storage in the 107-F basin. The ends of the pipe were capped.	A-96
105-F front and rear elevators	The elevators were reactivated in preparation for decommissioning F Reactor	None
233-S REDOX Plutonium Concentration Building	Continued decontaminating the inside surfaces of the building. Equipment in the PR can-storage room and can-storage room were dismantled and surfaces were cleaned and sealed with paint.	A-128
105-F control room and accumulator room	All instruments, controls, and equipment were removed from the control room and accumulator room and sold at a public sale	A-97 through A-99

Table 9. Site Cleanup Accomplishments.

Location	Work performed	Figure number
183-C sedimentation basins	Continued demolition work started in the previous year. A demolition ball was used to break up concrete side walls and buried them in the basin cavity.	A-27
190-D main pump room	The pumps, piping, and all salvageable material were purchased and removed by a salvage operator in FY 1978 and FY 1979 leaving several tank pedestals, unprotected voids inside tunnels, and the floor. These potential hazards were eliminated with Hanford Site cleanup funds.	A-23
600 Area farmsites	Continued eliminating potential hazards by demolishing remaining farmhouse foundations, irrigation flumes, and general cleanup	A-29 through A-41

Table 10. Salvage Operation.

Locations	Revenue received	Figure number
190-HA Building	\$29,000.00	A-100
187-B high tanks	\$3,600.00	A-101
190-B annex	\$95,360.00	A-100
190-B tank room, four large tanks	\$77,000.00	A-23
1902-B powerhouse water tank	\$1,580.00	A-13
1717-F Maintenance Shop Building	\$1,001.00	A-19

Table 11. Work Performed in Fiscal Year 1983. (sheet 1 of 2)

Locations	Work performed	Figure number
184-B smokestacks	Two smokestacks serving the 184-B powerhouse were demolished and buried in place	A-13 and A-14
116-C ventilation stack	The (61-m-) 200-ft-high stack was demolished and buried in place	A-102
116-F ventilation stack	Same as above	A-102
116-H ventilation stack	Same as above	A-102
117-H confinement filter building	The filters and other fixtures were removed and the building was decontaminated as Phase I work in preparation for demolishing the building at a later date	A-103 and A-104
108-F Biological Studies laboratory	The building contained a number of contaminated cells. Each cell contained a contaminated glovebox and a sink with a drainboard. The facility was decontaminated by removing all contaminated fixtures and removing the surface contamination. A network of exhaust pipe, which exhausted the gloveboxes, was cut in small sections, capped, and packaged for burial. All contaminated waste was packaged and disposed of in the 200 West Area burial ground.	A-78
115-F gas circulation building	The equipment was removed from the drier/blower cells, packaged, and buried in the 200 West Area burial ground. The aboveground portion of the building was decontaminated, demolished, and used as fill in the gas tunnel and basement. The excess waste was hauled to the 183-F clear wells.	A-105
108-B ventilation stack	The 91.4-m- (300-ft-) high ventilation stack was demolished with explosives and buried in a trench excavated at the stack location	A-80
117-F confinement building	The filters and fixtures were removed, packaged, and buried in the 200 West Area burial ground. The structure was then decontaminated, demolished, and buried in place	A-103 and A-104

Table 11. Work Performed in Fiscal Year 1983. (sheet 2 of 2)

Locations	Work performed	Figure number
201-C Strontium Semiworks Complex	Completed preliminary preparations and engineering for decommissioning the Strontium Semiworks Complex	A-108 and A-109
203-S, 204-S, and 205-S process tanks	The tanks were emptied except for a small heel in the bottom of the tanks. The tanks were filled with sand and moved to an approved burial trench. The burial site was covered with 0.6 to 3.0 m (2 to 10 ft) of clean soil.	A-106 and A-107

Table 12. Work Performed in Fiscal Year 1984. (sheet 1 of 2)

Location	Work performed	Figure number
105-B, -C, -D, and -DR fuel storage basins	A 2.4 to 3.0 m (8 to 10 ft) heel of contaminated water, residue from several years of operation, fuel buckets, and other miscellaneous radioactive material were removed from the basins. The basins were decontaminated and a fixative applied to the fixed contamination. The residual water in the basins was processed and released in accordance with established release criteria of that period. This work extended over a 25-month period.	A-110 through A-112
111-B Fuel Examination Building	The contaminated equipment was removed, packaged, and buried in the 200 West Area burial grounds. The building was decontaminated, dismantled, and disposed of as clean waste. The floor, foundation, and concrete waste tanks remain at the site.	None
115-F gas recirculation building	Work described in the FY 1983 summary was continued in this year	A-105
117-H confinement filter building	The building structure was demolished and buried in situ as a followup on work started in FY 1983	A-103 and A-104
107-F inlet-mixing chamber	The inlet-mixing chamber to the 107 retention basin was demolished and buried in situ	A-113
108-F biological laboratories	Completed contaminated-equipment removal and decontamination of the inside of the structure	A-78
100-F, -DR, -H and -C riverlines	Samples were taken from F, DR, and C lines and were analyzed to characterize the residual contamination in the lines. No samples were taken at H due to the turbulent river conditions.	None
108-B Tritium Separations Pilot Line Building	Started site preparations for demolition of the building. Removed asbestos, mercury, and equipment	A-79
117-C confinement filter building	Phase I work was completed in preparation for demolishing the structure. Removed filters and equipment and decontaminated the inside of the structure	A-103 and A-104

Table 12. Work Performed in Fiscal Year 1984. (sheet 2 of 2)

Location	Work performed	Figure number
292-T Building	Removed contaminated laboratory equipment and the associated ventilation and utility systems. Removed all loose contamination and applied fixative to the fixed contamination.	A-114
2707-BY instrument shop	The contaminated structure was totally razed and disposed of in the 200 Area burial grounds	A-115
201-C Strontium Semiworks Complex	Completed the dismantling plan for FY 1984, the environmental report, the 276-C Building cleanout and decontamination, the detailed dismantling plan for FY 1985, and 271-C Building decommissioning	A-124 and A-125
203-S, 204-S, and 205-S process tanks	Removal of the 204-S tanks and 1.2 km (4,000 ft) of UNH pipe that was buried between 204-S Tank and U Plant	A-106 and A-107
801-C building steam supply	The over-ground portion of the obsolete steam line between 244-CR vault and the 801-C Building, along with all support poles, were dismantled and disposed of	A-107

UNH = Uranyl nitrate hexahydrate.

Table 13. Work Performed in Fiscal Year 1985.

Locations	Work performed	Figure number
108-B Building	The removal of all radioactive and hazardous waste was completed. The structure was decontaminated and demolished. Clean waste was buried in the 184-B coalpit.	A-79
117-B confinement filter building	The Phase I work was completed in FY 1985. This work included removal of filters and all fixtures inside the building and decontaminating the inside surfaces of the structure.	A-103 and A-104
105-DR asbestos removal	The accessible clean and contaminated asbestos was removed, packaged, and disposed of in the respective approved burial grounds	A-116
105-D asbestos	Same as 105-DR asbestos	A-116
105-B, -C, -D, and -DR irradiated-fuel-storage basins	Work was completed on removing extraneous radioactive material from the basins. Completed removing the sludge from the bottom of the basins, decontaminating the inside surfaces of the basins, and applied fixative to the inside surfaces. The sludge in 105-C and -B basins was collected in the transfer pit for protective storage.	A-110 through A-112
107-B retention basin	The exterior walls, divider wall, and inlet boxes were demolished and covered with clean dirt inside the confines of the basin	A-60
107-C retention basin	The monitoring house was demolished and covered with clean dirt in the confines of the basin. All expansion boxes were filled with clean soil.	A-62
115-F gas recirculation building	Final closeout work was completed.	A-105
201-C Strontium Semiworks Complex	Dismantled the interior of the 201-C galleries, dismantled the 201-C hot shop, and evaluated B Cell explosives demolition concept	A-126

Table 14. Work Performed in Fiscal Year 1986. (sheet 1 of 2)

Locations	Work performed	Figure number
115-D/DR gas recirculation Building	Equipment in the blower/dryer rooms was removed, packaged, and buried in the 200 West Area burial grounds. The aboveground structure to the 0.3 m (1 ft) level was demolished and the debris was buried in the 184-D coalpit and 190-DR landfill. The floors and tunnel walls were buried in situ.	A-105
1608-F lift station	Disposed of residual water in the 1325-N liquid waste facility. Removed asbestos lagging and sludge. The structure was demolished and buried in situ. This work continued until August 1987.	A-117
117-D confinement filter building	The filters and fixtures were removed and buried in the 200 West Area burial ground. The internal surface of the building was decontaminated and the building demolished and buried in place.	A-103 and A-104
1608-D lift station	The fixtures, equipment, and sludge were removed and buried as low-level waste. The residual water was placed in drums, stabilized with absorbent, and buried in the 200 West Area burial grounds. The structure was demolished and buried in place. This work was completed in January 1987.	A-117
105-F asbestos removal	Contaminated and noncontaminated asbestos was removed from the accessible locations. The waste was packaged and disposed of in the respective approved waste-burial sites.	A-116
105-H process-water tunnels	The pipe carrier tunnels from 105 Building to 190 Building were uncovered and filled to grade with clean soil	A-118
107-H retention basin	The outside walls were demolished and buried inside the confines of the basin. Clean soil was added to the entire surface of the basin to stabilize the contamination.	A-60
100-D/DR cask pad	General cleanup and stabilization of the surface contamination was completed	A-119

Table 14. Work Performed in Fiscal Year 1986. (sheet 2 of 2)

Locations	Work performed	Figure number
1608-H lift station	Phase I work, which included the removal of contaminated fixtures and radioactive sludge, was completed. Waste was packaged and buried in the 200 West Area burial ground. The residual water was disposed of in the 1325-N liquid-waste-disposal facility.	A-117
115-B gas circulation building	Completed Phase I work. Removed equipment and fixtures from the blower/dryer rooms. Packaged and buried the waste in the 200 West Area burial ground.	A-105
201-C Strontium Semiworks Complex	Dismantled all piping and equipment in B Cell and entombed the material in concrete. Removed the stainless steel liner from the column-room shielding wall, demolished the concrete wall, and covered the rubble with concrete. Decontaminated B Cell interior with wet-grit blaster. Completed grout filling of 12 tanks in 201-C Cells. Characterized 291-C stack and 241-CX-70 tank. Completed concrete filling of the below-grade cells (A, C, D, and E).	A-123 and A-126
105-H asbestos removal	Asbestos was removed from clean and contaminated zones, packaged, and disposed of in the respective approved burial ground	A-116

Table 15. Work Performed in Fiscal Year 1987.

Location	Work performed	Figure number
183-B process-water filter plant	Removed asbestos, demolished headhouse and sedimentation basins. Waste was used as fill in the sedimentation basins	A-26, A-27, and A-116
1608-H lift station	Completed Phase II work. The structure was demolished and buried in place.	A-117
1608-DR lift station	Removed contaminated equipment, asbestos, sludge, and loose contamination. Buried the waste in the 200 Area burial ground. The residual water was disposed of in the 1325-N liquid-waste-disposal facility. Demolished the structure and buried it in place	A-117
165-KE boiler room	Removed asbestos lagging from steampipes. Packaged the waste and buried it in the approved burial ground	A-116
201-C Strontium Semiworks Complex	Completed subsurface isolation of the 201-C Facility, definitive design of earthen barrier and retaining wall. Demolished 201-C to design level and above-grade demolition of 291-C fan house	A-126 and A-127
105-F process-water tunnels	Uncovered the process-water tunnels between 105-F and 190-F and filled them to grade with clean soil	A-118

Table 16. Work Performed During Fiscal Year 1988.

Location	Work performed	Figure number
224-B Concentration Facility	Isolated the piping from the hot cells, removed stud walls, constructed a greenhouse for asbestos removal, completed crane design, completed general cleanup and buried waste	A-129
201-C Strontium Semiworks Complex	Started demolition of 2707-C and buried the waste in the 200 West Area burial ground. Completed decontamination and demolition of the 191-C stack. Completed sluicing the CX-70 tank	A-115 and A-123
183-B process-water plant	Completed demolition of the process-water plant. The clear wells were left in place for clean decommissioning waste. Debris was buried in place	A-25
184-D powerhouse foundation	Demolished the pad and foundation of the powerhouse. Buried the waste in situ	A-13
184-B powerhouse foundation	Same as above	A-13
1717-F Maintenance Shop	Same as above except the waste was buried in the 183-F clear wells	A-19
300 Area, Plutonium Recycle Criticality Facility	Removed hazardous and radioactive waste plus contaminated equipment. Decontaminated the inside surfaces of the facility structure	A-120

Table 17. Work Performed During Fiscal Year 1989.

Locations	Work performed	Figure number
2704-E Office Building	Asbestos shakes were removed and packaged for approved burial. The remainder of the building was demolished and disposed of as clean waste.	A-21
115-B/C gas recirculation building	The structure was demolished. The above-ground debris was used as fill in the 184-B coalpit. The floor, basement, and pipe tunnel walls were buried in situ.	A-105
117-C confinement filter building	Completed demolition of the filter building. The debris was buried in place.	A-103 and A-104
Plant General	Twenty-two underground storage tanks were removed and disposed of. The majority of the tanks were inactive and had been used for storage of petroleum products.	None
201-C Strontium Semiworks Complex	Completed demolition of the 2707-C Building. Completed the engineering plan for sampling and decommissioning tank CX-72. Completed establishing tank CX-70 in safe storage	A-108 and A-115
3707-A Fuels Training Facility	The asbestos lagging and floor tile inside the building were removed and disposed of by approved methods. The asbestos shakes were removed, packaged, and disposed of, according to regulations. The wooden structure was then demolished and disposed of as clean waste.	A-116 and A-121

Table 18. Work Performed During Fiscal Year 1990.

Locations	Work performed	Figure number
105-C asbestos removal	Removed asbestos lagging from piping inside and outside the established radiation zones	A-116
200-E waste barrels	A number of hazardous waste barrels had small but detectable amounts of loose asbestos contamination on the outside surface. The asbestos was removed, packaged, and disposed of.	None
201-C Strontium Semiworks	Completed a definitive design for grout removal from tank CX-70. Continued with the task plan preparation for decommissioning tank CX-72, procurement of exhauster, evaluation of removal method for tank CX-70, and completed sampling tank CX-71. Initiated work on NEPA* documentation and regulatory requirements	A-108
1701-D Badge House	The asbestos lagging was removed and disposed of. The building was demolished and buried in the 183-H clear wells.	A-116 and A-122

*NEPA = National Environmental Policy Administration (Act).

APPENDIX A
PHOTOGRAPHS

The following pages contain photographs taken at the Hanford Site. There are before and after photographs for each of the 100 Areas. However, because so many facilities have been added to the 200 and 300 Areas, before and after photos would not be meaningful. The 600 Area is too large to cover with photographs of this nature.

Only one photograph of like facilities is used to typify work accomplished. For example, the powerhouse stacks in 100-B/C, -D/DR, and -H (a total of nine smokestacks) were demolished and only one photograph was used to represent all nine of the identical stacks.

Figure A-1. 100 B and 100 C Areas Before Cleanup
and Decommissioning.

Figure A-2. 100 B and 100 C Areas After Cleanup
and Decommissioning.

Figure A-3. 100 D and 100 DR Areas Before Cleanup
and Decommissioning.

Figure A-4. 100 D and 100 DR Areas After Cleanup
and Decommissioning.

Figure A-5. 100 F Area Before Cleanup and Decommissioning.

Figure A-6. 100 F Area with Biological Facilities
Shown at the Extreme Right.

Figure A-7. 100 F Area After Cleanup and Decommissioning.

Figure A-8. 100 H Area Before Cleanup and Decommissioning.

Figure A-9. 100 H Area After Cleanup and Decommissioning.

Figure A-10. 100 K West and 100 K East Areas Before Cleanup and Decommissioning.

Figure A-11. 100 K West and 100 K East Areas After Cleanup and Decommissioning.

Figure A-12. 181 River Pumphouse Area Before, During,
and After Cleanup and Decommissioning.

Figure A-13. 184 Powerhouse with the Coalpit Shown at the Left.

Figure A-14. 184 Powerhouse During Smokestack Demolition.

Figure A-15. The 1713-H Warehouse.

Figure A-16. The 1716 Service Building Used for Automotive Repair.

Figure A-17. The 1705 Oil Storage Service Building
Shown at the Left.

Figure A-18. The 1722 Service Building Containing
a Paint Shop and Rigger's Loft.

Figure A-19. The 1717 Maintenance Shop/Service Building.

Figure A-20. The 1719 Service Building Containing a First Aid Facility.

Figure A-21. The 1704 Office Building.

Figure A-22. An Example of the Network of Steamlines Located in Each Area.

Figure A-23. 190 Building, in this Complex, Held the Main
Pumproom for Reactor Cooling Water.

Figure A-24. 182 Reservoir Used for Untreated Riverwater Storage.

Figure A-25. 183 Process-Water-Treatment Facility with Headhouse and Sedimentation Basins.

Figure A-26. Headhouse at the 183 Process-Water-Treatment Facility.

Figure A-27. 183 Sedimentation Basins.

Figure A-28. 183 Filter Building for Process-Water Treatment.

Figure A-29. Farm Building.

Figure A-30. Farmsite.

Figure A-31. Farmsite.

Figure A-32. Well and Liner on a Farmsite.

Figure A-33. Well and Debris on a Farmsite.

Figure A-34. A Well Located on a Farmsite.

Figure A-35. An Old Abandoned Farmhouse.

Figure A-36. An Old Farm Building.

Figure A-37. An Old Abandoned Farmhouse.

Figure A-38. The Basement of an Old Farmhouse.

Figure A-39. Debris on an Old Farmsite.

Figure A-40. Cellar on an Old Farmsite.

Figure A-41. A Deep Pit on an Old Farmsite.

Figure A-42. Steel Cover over the Silo on a Nike Site.

Figure A-43. Steel Cover over the Silo on a Nike Site.

Figure A-44. Opening to the Silo on a Nike Site.

Figure A-45. Nike Site Demolition in Progress.

Figure A-46. Nike Site Demolition in Progress.

Figure A-47. Antiaircraft Site Demolition in Progress.

Figure A-48. Wells Located on the Antiaircraft Site.

Figure A-49. P-11 Facility Before Decommissioning.

Figure A-50. P-11 Facility After Decommissioning.

Figure A-51. An Old Pumphouse on the Riverbank.

Figure A-52. Construction and Farm Debris Located on a Riverbank.

Figure A-53. 1907 Outfall Discharge Flume from the
190-DR Rainwater Collection Sump.

Figure A-54. Debris Located on a Riverbank.

Figure A-55. White Bluffs Cold Storage and Ice House.

Figure A-56. 1705-F Pharmacology Laboratory.

Figure A-57. 1705-F Pharmacology Laboratory.

Figure A-58. Inlet Section of the 100 K Area Mile-long Trench.

Figure A-59. Lower end of Mile-long Trench with Contamination Covered with Clean Fill.

Figure A-60. Typical Right Bay of the 107-B, -D, -DR, -F, and -H Retention Basins.

Figure A-61. Typical Liquid-waste Trench (107 Dump Trench).

Figure A-62. Top, Clean Earth over Liquid-waste Trench.
Center, 107-C Retention Basins.

Figure A-63. 151 Power Distribution Facility.

Figure A-64. 103 Building Used to Store Unirradiated Fuel.

Figure A-65. 144-F Building with Attached Animal Pens.

Figure A-66. 144-N Kennel.

Figure A-67. 144-R Animal Barn

Figure A-68. 144-N Refuse Disposal Facility Shown at the Left.

Figure A-69. Animal Pens at the 141-G Building.

Figure A-70. 141-P Building with Connecting Animal Pens.

Figure A-71. The 141-F Building and Associated Animal Pens.

Figure A-72. The 141-H Building is Shown on the Right and the Animal Shelter is on the Left.

Figure A-73. The 145-F Underground Counting Vault Shown on the Right of 141-C Building.

Figure A-74. The 141-L Hay Barn.

Figure A-75. A Typical Well on the Nike Site.

Figure A-76. The Wahluke Slope One-room Schoolhouse.

Figure A-77. Igloo on the Old Antiaircraft Site near the 200 West Area.

Figure A-78. The 108-F Building is Shown in the Foreground.

Figure A-79. 108-B Tritium Pilot Facility During Demolition.

Figure A-80. The 108-B Tritium Pilot Facility Ventilation Exhaust Stack.

Figure A-81. Foundation of the Hanford Townsite Jail (Used During Construction).

Figure A-82. Cement Pad, Footings, and Debris Remaining from the 101-T Building.

Figure A-83. 144-F Laboratory.

Figure A-84. 100 K Area Solid Waste Burial Ground.

Figure A-85. One of Six 107-K Effluent Retention Tanks.

Figure A-86. A Typical Security Fence Surrounding the 107 Basins.

Figure A-87. 186-D Demineralization Building.

Figure A-88. 1904 Effluent Discharge Facility.

Figure A-89. An Old Farm Structure Located near Gable Mountain.

Figure A-90. An Old Farm Building Located Between the Hanford Townsite and White Bluffs.

Figure A-91. A Farmsite in the Gable Mountain Area.

Figure A-92. Remnants of a Farm Building near Gable Mountain.

Figure A-93. The 141-C Building Containing Contaminated Animal Pens.

Figure A-94. A Uranium Oxide Burner in the 300 Area.

Figure A-95. The Uranium Oxide Burner Being Decommissioned.

Figure A-96. 100 F Area Effluent Lines.

Figure A-97. The 105-F Control Room Before Decommissioning.

Figure A-98. The 105-F Control Room After Decommissioning.

Figure A-99. The 105-F Accumulator Room After Decommissioning.

Figure A-100. The 190 Building Annex.

Figure A-101. A High Tank that Contained Emergency Cooling Flow.

Figure A-102. The 105 Building Ventilation Stack (116 Facility).

Figure A-103. The 117 Building Confinement Filter is Shown in the Foreground.

Figure A-104. The 117 Building Confinement Filter During Decommissioning.

Figure A-105. The 115 Gas Recirculation Building During Decommissioning.

Figure A-106. The 203-S, 204-S, and 205-S Process Tanks Shown at the Center Top of the Photo.

Figure A-107. The 203-S, 204-S, and 205-S Process-tank Site After Decommissioning.

Figure A-108. The 201-C Strontium Semiworks Complex Before Decommissioning.

Figure A-109. Final Stage of Decommissioning the 201-C Strontium Semiworks Complex.

Figure A-110. Irradiated-fuel-storage Basin Area. Floor Covers a 20-ft-deep Water-filled Basin.

Figure A-111. Irradiated Fuel Storage Basin During Cleanup.

Figure A-112. A Small Section of the Irradiated-fuel-storage Basin
After Cleanup.

Figure A-113. 107 Retention Basin Inlet-mixing Chamber.

Figure A-114. The 292-T Building.

Figure A-115. The 2707 Building.

Figure A-116. Typical Asbestos Removal.

Figure A-117. The Progressive Demolition of the 1608 Lift Station.

Figure A-118. Process-water Tunnel Between 105 and 190. There Were Two at Each Reactor Area.

Figure A-119. The Cask Pad for the D and DR Areas.

Figure A-120. Plutonium Recycle Critical Facility Decommissioning.

Figure A-121. The 3707-A Fuels Training Facility.

Figure A-122. The 1701 Badge House, a Security Checkpoint.

Figure A-123. The 291-C Stack Demolition.

Figure A-124. The 276-C Building.

Figure A-125. The 271-C Building.

Figure A-126. A View of the 201-C Strontium Semiworks Complex.

Figure A-127. The 291-C Fan House is Shown in the Lower Right.

Figure A-128. The 233-S Facility.

Figure A-129. The 224-B Facility.

APPENDIX B
INDEX OF PHOTOGRAPHS

Figure number	Figure identification	Negative number
A-1	B and C Areas before cleanup	91041622-3
A-2	B and C Areas after cleanup	91060518-1 cn
A-3	D and DR Areas before cleanup	91041622-4
A-4	D and DR Area after cleanup	91060518-15 cn
A-5	F Area before cleanup	91041622-1
A-6	F Area before cleanup of animal farm	74227-3 cn
A-7	F Area after cleanup	91060518-6 cn
A-8	H Area before cleanup	91041622-5
A-9	H Area after cleanup	91060518-12 cn
A-10	K Areas before cleanup	91041622-2
A-11	K Areas after cleanup	91060518-19 cn
A-12	Sequential view of 181 river pumphouse	91041127-1
A-13	Overhead view of 184 powerhouse and coalpit	91012802-8 cn
A-14	184 powerhouse smokestack demolition	90121325-7 cn
A-15	1713-H Warehouse	83G195-162 cn
A-16	1716 service building for automotive repair	7711534-30 cn
A-17	1705 oil storage building	7912284-3 cn
A-18	1722 paint shop and rigger's loft	7912284-1 cn
A-19	1717 Maintenance Shop	7711534-33 cn
A-20	1719 First Aid Building	91012802-9 cn
A-21	1704 Administration Building	7813738-3 cn
A-22	Section of steamline network	7801606-9 cn
A-23	185\189\190 Complex	768433-9 cn
A-24	182 Reservoir	768433-16 cn
A-25	Overhead view of 183 Water-treatment Complex	106669-15 cn
A-26	183 Headhouse	768433-21 cn
A-27	183 sedimentation building	7909543-9 cn
A-28	183 filter building	768433-10 cn
A-29	Farm building	63837-3 cn

Figure number	Figure identification	Negative number
A-30	Farmsite	91012802-5 cn
A-31	Farmsite	91012802-4 cn
A-32	Well and liner on farmsite	91012802-2 cn
A-33	Well and debris on farmsite	91012802-7 cn
A-34	Well on farmsite	91012802-12 cn
A-35	Old abandoned farmhouse	90121325-33 cn
A-36	Farm building	90121325-32 cn
A-37	Old abandoned farmhouse	90121325-30 cn
A-38	Basement of old farmhouse	90121325-31 cn
A-39	Debris on farmsite	90121325-28 cn
A-40	Root cellar on farmsite	90121325-27 cn
A-41	Deep pit on farmsite	90121325-5 cn
A-42	Steel cover over a silo on a Nike site	63837-14 cn
A-43	Steel cover over a silo on a Nike site	69936-3 cn
A-44	Opening to a silo on a Nike site	90121325-19 cn
A-45	Nike site demolition in progress	90121325-8 cn
A-46	Nike site demolition in progress	90121325-14 cn
A-47	Antiaircraft site demolition in progress	63837-13 cn
A-48	Wells on antiaircraft site	90121325-3 cn
A-49	P-11 facility before decommissioning	742426-2
A-50	P-11 site after decommissioning	747562-1
A-51	Farmer's pumphouse on a riverbank	63837-5 cn
A-52	Construction and farm debris on a riverbank	7711534-10
A-53	1907 discharge flume from 190-DR rainwater	83795-11 cn
A-54	Debris located on riverbank	7908834-64 cn
A-55	White Bluffs cold storage and ice house	63837-25 cn
A-56	1705-F Pharmacology laboratory	91050839-1
A-57	1705-F Pharmacology laboratory	63837-30 cn
A-58	Inlet section of 100 K mile-long trench	52033-4 cn

Figure number	Figure identification	Negative number
A-59	Lower end of mile-long trench	779005-6 cn
A-60	Typical right bay of a 107 retention basin at B, D, DR, F and H Areas	776297-7-2 cn
A-61	Typical liquid-waste-disposal trench. The 107 dump trench	91012892-10 cn
A-62	107-C retention basins	10669-25 cn
A-63	151 Power distribution facility	768433-5 cn
A-64	103 Building for unirradiated fuel storage	83G195-29 cn
A-65	144-F Building with attached animal pens	768433-42 cn
A-66	144-N kennel	768433-43
A-67	144-R animal barn	768433-44 cn
A-68	141-N refuse disposal facility	776297-5/8
A-69	141-G Building and animal pens	768433-47 cn
A-70	141-P Building and animal pens	768433-48 cn
A-71	141-F Building and animal pens	768433-49 cn
A-72	141-H Building and animal shelter	768433-50 cn
A-73	145-F Underground counting vault	768433-5 cn
A-74	141-L Hay barn	768433-55 cn
A-75	Typical well on Nike sites	768433-11 cn
A-76	Wahluke Slope one-room school	90121325-29 cn
A-77	Igloo on old antiaircraft site	7711534-1 cn
A-78	108-F Building	106669-90 cn
A-79	108-B Tritium Pilot Facility	8503561-30 cn
A-80	108-B Tritium Pilot Facility ventilation stack	83G158-80 cn
A-81	Debris from former Hanford townsite jail	91041566-2
A-82	Cement pad for 101-T Building	91041566-3
A-83	144-F laboratory	776297-5-6
A-84	100-K solid waste burial ground	91060518-21 cn
A-85	One of six 107-K effluent basins	7912284-20 cn

Figure number	Figure identification	Negative number
A-86	Typical fence installation to secure the 107 basins	7910909-27 cn
A-87	186-D Demineralization Building	7813324-9 cn
A-88	1904 Effluent Discharge Facility	768433-146
A-89	Old farm structure near Gable Mountain	90121325-26 cn
A-90	Farm Building between Hanford and White Bluffs	63837-27 cn
A-91	Farmsite near Gable Mountain	7711534-18 cn
A-92	Remnants of a farm near Gable Mountain	7711534-20
A-93	141-C Barn containing contaminated animal stalls	91041566-1
A-94	300 Area uranium oxide burner	7909517-35 cn
A-95	300 Area uranium oxide burner	790517-35 cn
A-96	105-F effluent line	7908834-36 cn
A-97	105-F control room before decommissioning	86A049-19 cn
A-98	105-F control room after decommissioning	7909543-20 cn
A-99	105-F accumulator room after decommissioning	7909543-21 cn
A-100	190 Building Annex	8003268-15 cn
A-101	187 high tanks for emergency cooling	836195-1 cn
A-102	105 Building ventilation stack	8204746-34 cn
A-103	117 Building in foreground	83E700-6 cn
A-104	117 Building decommissioning in progress	83F465-10 cn
A-105	115 gas recirculation building during decommissioning	84B583-9 cn
A-106	203-S, 204-S And 205-S process tanks	101956-18 cn
A-107	203-S, 204-S And 205-S process tank site after decommissioning	8508641-1 cn
A-108	201-C Strontium Works Complex before decommissioning	106669-2 cn
A-109	201-C Strontium Semiworks after decommissioning	88081932-133 cn
A-110	Irradiated fuel storage basin	85H807-4 cn
A-111	Irradiated fuel storage basin during cleanup	84G707-12 cn

Figure number	Figure identification	Negative number
A-112	Irradiated fuel storage basin after cleanup	846707-30 cn
A-113	107 basin inlet mixing chamber	768433-14 cn
A-114	292-T Building	8402465-1 cn
A-115	2707 Building	88102453-10 cn
A-116	Asbestos removal	84H516-6 cn
A-117	Progressive demolition of 1608 lift station	135032-2 cn
A-118	105/190 process tunnel	87E754-5 cn
A-119	105 DR cask pad	85F432-19 cn
A-120	Plutonium Recycle Facility	90051008-3 cn
A-121	3707-A Fuels Training Facility	8902734-30 cn
A-122	1701 Badge House	83G185-41 cn
A-123	291-C stack demolition	88081604-31 cn
A-124	276-C Building	8403723-14 cn
A-125	271-C Building	8404125-77 cn
A-126	201-C Building	91046554-1 cn
A-127	201-C Fan House	8507413-82 cn
A-128	233-S Plutonium Concentration Facility	8503592-16 cn
A-129	224-B Facility	8406397-16 cn

DISTRIBUTION

Number of copiesOFFSITE

2 U.S. Department of Energy-
Headquarters

19901 Germantown Rd
Germantown, MD 20585

A. F. Kluk

ONSITE

9 U.S. Department of Energy
Field Office, Richland

E. A. Bracken (5)	A5-15
J. K. Erickson	A5-19
R. D. Freeberg	A5-19
J. D. Goodenough	A5-19
DOE Reading Room	A1-65

1 Pacific Northwest laboratory

Technical Files	P8-55
-----------------	-------

39 Westinghouse Hanford Company

R. J. Bliss	B3-04
K. A. Gano	X0-21
M. C. Hughes (21)	L4-88
S. K. Kiser	L4-88
R. E. Lerch	B2-35
S. F. McCoy	L4-88
M. A. Mihalic	L4-88
K. S. Pedersen	S4-67
D. R. Speer	R2-77
G. E. VanSickle	R2-81
R. K. Wahlen	A3-30
B. F. Weaver	T3-29
G. T. Wells	L4-88
R. A. Winship	A3-30
R. D. Wojtasek	L4-92
Central Files	L8-04
Information Release	
Administration (3)	A2-24

END

**DATE
FILMED**

12/10/91