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Hanford Surplus Facilities Programs Facilities Listings and Descriptions

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Date Published
January 1994

Prepared for the U.S. Department of Energy
Assistant Secretary for Defense Programs

**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

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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)

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HANFORD SURPLUS FACILITIES PROGRAMS FACILITY LISTINGS AND DESCRIPTIONS

1.0 INTRODUCTION

On the Hanford Site, many surplus facilities exist (including buildings, stacks, tanks, cribs, burial grounds, and septic systems) that are scheduled to be decommissioned. Many of these facilities contain large inventories of radionuclides, which present potential radiological hazards on and off the Hanford Site. Some structures with limited structural deterioration present potential radiological and industrial safety hazards to personnel. Because of the condition of these facilities, a systematic surveillance and maintenance program is performed to identify and correct potential hazards to personnel and the environment until eventual decommissioning operations are completed.

1.1 NEED

A single source of information is needed for (1) decommissioning planning, (2) surveillance and maintenance programs, and (3) pertinent information concerning facilities under the Hanford Surplus Facilities Program. This document serves as a source for the needed information.

1.2 SCOPE

This document provides a list of all the facilities that are currently under the responsibility of Hanford Surplus Facilities Program. In addition, this document summarizes the available characterization information that is applicable to each facility. The level of detail of characterization information varies from site to site with the availability of data.

1.3 INDIVIDUAL FACILITY DESCRIPTIONS

The following text includes descriptions and information about each facility under the Hanford Surplus Facilities Program. The information is provided for each individual facility. Whenever possible, a photograph of the facility has been included. The facilities are grouped together by area and by building number (refer to Figure 1).

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Figure 1. The Hanford Site.

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103-B RIGGERS LOFT**1.0 LOCATION**

The 103-B Riggers Loft (formerly Fresh Metal Storage) is located in the 100-B/C Area, directly north of the 105-B Building inside the exclusion area fence.

2.0 PURPOSE/HISTORY

Originally, this building was used for pallet storage of fuel elements to be used in the reactor. However, in 1985 the building was decontaminated and cleaned. The building is now used as a riggers loft to store rigging equipment.

3.0 DESCRIPTION/DIMENSIONS

The dimensions of the 103-B Riggers Loft are 16.2 m by 8.2 m by 4.4 m (53 ft by 27 ft by 14.5 ft). The building has a total area of 133 m² (1,431 ft²). It is constructed of reinforced concrete and concrete block with a concrete foundation and floor, concrete block walls, and a concrete roof with built-up tar and gravel surface. At one end of the building there is a 1.5-m (5-ft) -long material-handling reinforced concrete floor-level loading platform and doors. The open interior accommodates forklift transport.

4.0 REFERENCE

Drawings: W-69375

Photograph: 92080357-21CN

5.0 UTILITIES AND SAFETY SYSTEMS

Intrusion Alarm	Yes []	No [x]	Unknown []
Heat	Yes []	No [x]	Unknown []
Ventilation	Yes []	No [x]	Unknown []
Air Conditioning	Yes []	No [x]	Unknown []
Electricity	Yes [x]	No []	Unknown []
Fire Detection	Yes []	No [x]	Unknown []
Fire Suppression	Yes []	No [x]	Unknown []
Compressed Air	Yes []	No [x]	Unknown []
Vacuum Air	Yes []	No [x]	Unknown []
Breathing Air	Yes []	No [x]	Unknown []
Water	Yes []	No [x]	Unknown []
Drain	Yes []	No [x]	Unknown []
Emergency Shower	Yes []	No [x]	Unknown []
Exclusion Fence	Yes [x]	No []	Unknown []
Air Sampling	Yes []	No [x]	Unknown []

103-B RIGGERS LOFT

6.0 BUILDING PHYSICAL STATUS

Interior Condition:	Fair
Exterior Condition:	Poor
Roof Condition:	Poor
Operational Equipment:	Not applicable
Radiological Products:	To be determined
Chemical Products:	To be determined

7.0 HAZARDS IDENTIFIED

As the result of specific building walkthroughs by senior safety and engineering personnel, the most significant hazards have been identified. However, because of the nature and age of the facilities, conditions and potential hazards will change periodically. Therefore, caution must be taken by all personnel entering the facility to ensure personal safety. Specific hazards include missing light bulbs, broken conduit, and loose ladder rungs.

The facility is subject to periodic vermin intrusion. Animal feces should be avoided because it is a health hazard and may be radiologically contaminated. Spiders, bull snakes, and rattlesnakes are common throughout the area and have been encountered in other facilities in the past.

103-B RIGGERS LOFT

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104-B-1 TRITIUM VAULT**1.0 LOCATION**

The 104-B-1 Tritium Vault is located in the 100-B/C Area, north of the 105-B Building and inside the exclusion area fence.

2.0 PURPOSE/HISTORY

The 104-B-1 Tritium Vault is used for storage of tritium recovered from irradiated lithiumaluminum target elements.

3.0 DESCRIPTION/DIMENSIONS

The 104-B-1 Tritium Vault, which is constructed of concrete block, 3.1 m (10 ft) below grade and 3.1 m (10 ft) above grade, is approximately 12 m² (130 ft²) in size. The 104-B-1 Tritium Vault was placed in service in January 1950.

4.0 REFERENCE

Photograph: 92080357-22CN

5.0 UTILITIES AND SAFETY SYSTEMS

Intrusion Alarm	Yes []	No [x]	Unknown []
Heat	Yes []	No [x]	Unknown []
Ventilation	Yes []	No [x]	Unknown []
Air Conditioning	Yes []	No [x]	Unknown []
Electricity	Yes [x]	No []	Unknown []
Fire Detection	Yes []	No [x]	Unknown []
Fire Suppression	Yes []	No [x]	Unknown []
Compressed Air	Yes []	No [x]	Unknown []
Vacuum Air	Yes []	No [x]	Unknown []
Breathing Air	Yes []	No [x]	Unknown []
Water	Yes []	No [x]	Unknown []
Drain	Yes []	No [x]	Unknown []
Emergency Shower	Yes []	No [x]	Unknown []
Exclusion Fence	Yes [x]	No []	Unknown []
Air Sampling	Yes []	No [x]	Unknown []

6.0 BUILDING PHYSICAL STATUS

Interior Condition:	Fair
Exterior Condition:	Poor
Roof Condition:	Poor
Operational Equipment:	Not applicable
Radiological Products:	To be determined
Chemical Products:	To be determined

104-B-1 TRITIUM VAULT

7.0 HAZARDS IDENTIFIED

This building is isolated and should not be entered unless a specific safety appraisal is performed prior to entry.

Because of the nature and age of the facilities, conditions and potential hazards will change periodically. Therefore, caution must be taken by all personnel entering the facility to ensure personal safety.

In addition, the facility is subject to periodic vermin intrusion. Animal feces should be avoided as it is a health hazard and may be radiologically contaminated. Spiders, bull snakes, and rattlesnakes are common throughout the area and have been encountered in other facilities in the past.

104-B-1 TRITIUM VAULT

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104-B-2 TRITIUM LABORATORY**1.0 LOCATION**

The 104-B-2 Tritium Laboratory is located in the 100-B/C Area, in the northwest corner of the 105-B exclusion area, inside the exclusion fence.

2.0 PURPOSE/HISTORY

The 104-B-2 Tritium Laboratory was an inactive storage unit when the 108-B Building was used for recovering tritium from irradiated lithium-aluminum target elements. The building stored irradiated target elements prior to separations processing. This facility received wastes from 1948 to 1965.

3.0 DESCRIPTION/DIMENSIONS

This building is a concrete structure about 3.7 m by 7.3 m by 3.1 m (12 ft by 24 ft by 10 ft), with special cells in the floor to store casks used in the pilot P-10 program. The building has been deactivated and is currently used to store reactor components from B and C Reactors. These reactor components are slightly contaminated.

4.0 REFERENCE

Photograph: 92080357-23CN

5.0 UTILITIES AND SAFETY SYSTEMS

Intrusion Alarm	Yes []	No [x]	Unknown []
Heat	Yes []	No [x]	Unknown []
Ventilation	Yes []	No [x]	Unknown []
Air Conditioning	Yes []	No [x]	Unknown []
Electricity	Yes [x]	No []	Unknown []
Fire Detection	Yes []	No [x]	Unknown []
Fire Suppression	Yes []	No [x]	Unknown []
Compressed Air	Yes []	No [x]	Unknown []
Vacuum Air	Yes []	No [x]	Unknown []
Breathing Air	Yes []	No [x]	Unknown []
Water	Yes []	No [x]	Unknown []
Drain	Yes [x]	No []	Unknown []
Emergency Shower	Yes []	No [x]	Unknown []
Exclusion Fence	Yes [x]	No []	Unknown []
Air Sampling	Yes []	No [x]	Unknown []

104-B-2 TRITIUM LABORATORY

6.0 BUILDING PHYSICAL STATUS

Interior Condition:	Fair
Exterior Condition:	Poor
Roof Condition:	Poor
Operational Equipment:	Not applicable
Radiological Products:	To be determined
Chemical Products:	To be determined

7.0 HAZARDS IDENTIFIED

This building is isolated and not to be entered unless a specific safety appraisal is performed prior to entry.

Because of the nature and age of the facilities, conditions and potential hazards will change periodically. Therefore, caution must be taken by all personnel entering the facility to ensure personal safety.

In addition, the facility is subject to periodic vermin intrusion. Animal feces should be avoided because it is a health hazard and may be radiologically contaminated. Spiders, bull snakes, and rattlesnakes are common throughout the area and have been encountered in other facilities in the past.

104-B-2 TRITIUM LABORATORY

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105-B REACTOR BUILDING**1.0 LOCATION**

The 105-B Reactor Building is located on the northeast side of the 100-B/C Area.

2.0 PURPOSE/HISTORY

The 105-B Reactor Building provided housing for the nuclear reactor and equipment directly associated with reactor operations.

Construction began in August 1943, and the B Reactor started up on September 26, 1944. The B Reactor was shut down and held in standby from March 19, 1946, to June 2, 1948; then it was restarted and operated until February 13, 1968, when it was permanently shut down.

3.0 DESCRIPTION/DIMENSIONS

Offices:	142 m ² (1,530 ft ²)	Shops:	15.3 m ² (165 ft ²)
Work Area:	2,857 m ² (30,750 ft ²)	Storage:	363 m ² (3,910 ft ²)
Laboratory:	138 m ² (1,490 ft ²)	Common:	1,478 m ² (15,910 ft ²)

Except for reinforced concrete portions, the 105-B Reactor Building can be classified as a light, non-airtight industrial structure. It is constructed of reinforced concrete in the lower portion and of concrete block or corrugated asbestos cement in the upper portion. The building has massive (0.9-m [3-ft] to 1.5-m [5-ft] -thick) reinforced concrete walls around the reactor block at the lower levels to provide additional radiation shielding. The roof is constructed of reinforced concrete or precast concrete roof tile, depending on the specific roof area in question. An extensive ventilation system provided ventilation for personnel comfort and contained the radioactive contamination through controlled pressure zone air flow.

Reactor Block. The reactor block is located near the center of the building. When facing the reactor front face, the horizontal control rod penetrations are on the left side of the reactor block, and the safety rod penetrations are on the top of the reactor. Fuel discharge and storage areas are located adjacent to the rear face of the reactor block. Experimental test penetrations are on the right side. The reactor block consists of a graphite moderator stack encased in cast iron thermal shielding and a biological shield consisting of alternating layers of masonite and steel. The entire block rests on a massive concrete foundation. The block weighs approximately 9,145 metric tons (9,000 tons) and is 14 m high by 14 m wide by 12.2 m deep (46 ft high by 46 ft wide by 40 ft deep).

105-B REACTOR BUILDING

3.0 DESCRIPTION/DIMENSIONS (Continued)

Storage Basin. The fuel storage basin served as a collection, storage, and transfer facility for the irradiated fuel elements discharged from the reactor. It consists of a fuel element pickup area, the storage area, and the transfer area. Irradiated fuel elements were sorted in the pickup area, transferred to buckets, transported by monorail to the storage area, and held to allow decay of short-lived radionuclides prior to reprocessing. Following storage, the buckets of fuel elements were moved to the transfer area, placed in lead-shield casks, and moved into a compartmented, water-filled railroad well for transport to the chemical processing facilities. A wash pad, which was used for equipment decontamination, and an underwater inspection facility are also in the storage basin area. The total area of the fuel storage basin, including the fuel element pickup and transfer areas, is approximately 929 m² (10,000 ft²). The basin is 6.7 m (22 ft) deep, has either a wooden slotted or steel grating floor, and contains 6.1 m (20 ft) of water during operating periods. Average thickness of the outside walls and bottom of the basin is 51 cm (20 in.) and 15 cm (6 in.), respectively.

4.0 REFERENCE

Drawings: W-70833, W-70829

Photograph: 93070619-100CN

5.0 UTILITIES AND SAFETY SYSTEMS

Intrusion Alarm	Yes [x]	No []	Unknown []
Heat	Yes [x]	No []	Unknown []
Ventilation	Yes []	No [x]	Unknown []
Air Conditioning	Yes []	No [x]	Unknown []
Electricity	Yes [x]*	No []	Unknown []
Fire Detection	Yes [x]**	No []	Unknown []
Fire Suppression	Yes []	No [x]	Unknown []
Compressed Air	Yes []	No [x]	Unknown []
Vacuum Air	Yes []	No [x]	Unknown []
Breathing Air	Yes []	No [x]	Unknown []
Water	Yes [x]	No []	Unknown []
Drain	Yes [x]	No []	Unknown []
Emergency Shower	Yes []	No [x]	Unknown []
Exclusion Fence	Yes [x]	No []	Unknown []
Air Sampling	Yes []	No [x]	Unknown []

*Electricity in specific portions of the building only.

**There are two fire detectors in the control room.

105-B REACTOR BUILDING

6.0 BUILDING PHYSICAL STATUS

Interior Condition:	Good
Exterior Condition:	Fair
Roof Condition:	Fair
Operational Equipment:	Poor
Radiological Products:	Activation Products
Chemical Products:	Asbestos, others to be determined during decommissioning

7.0 HAZARDS IDENTIFIED

As the result of specific building walkthroughs by senior safety and engineering personnel, the most significant hazards have been identified. However, because of the nature and age of the facilities, conditions and potential hazards will change periodically. Therefore, caution must be taken by all personnel entering the facility to ensure personal safety.

Radiological Hazards

The 105-B Reactor Building is a radiologically controlled area. Radioactive contamination is essentially all activation and corrosion products (beta-gamma emitters) from reactor operations. Routine entry and exit requirements are identified in the Radiation Work Permit (RWP), which is posted at the facility entrance. Nonroutine activities require that a special RWP be prepared. RWP requirements are mandatory.

Surface Contamination Areas

Personnel must stay clear of posted surface contamination areas in the 105-B Building. Specific posted surface contamination areas include the fuel storage basins, the C elevator at the front face, the entire rear face area, the top of the reactor, both sets of stairs, and the valve pit area. The RWP for each of these areas defines anticontamination clothing requirements for access to these areas.

Industrial Hazards

The 105-B Reactor Building is an inactive facility and is entered for tours and monthly surveillance. The tour route, which is comprised of the front face work area, the control room, and office spaces, is reasonably free of other hazards. While other areas of the facility are entered less frequently, additional caution and preplanning are warranted when entering these areas. All areas except the tour route area are hard-hat areas.

Fall Hazards

The absence of guardrails on the building's multilevel flat roofs presents a potential fall hazard.

105-B REACTOR BUILDING

7.0 HAZARDS IDENTIFIED (Continued)

Roof structures are in fair condition. However, visual inspection of the roof surface will not always indicate structural integrity, and some cracked roofing panels have been noted. ALL ACCESS TO ROOF STRUCTURES REQUIRES SPECIFIC SAFETY EVALUATIONS AND WRITTEN AUTHORIZATION FROM THE FACILITY MANAGER.

Stairs, handrails, and guardrails around the facility stairs and subgrade structures are old and, in some cases, deteriorated. Wooden stairs and handrails are the most suspect and should not be relied on to provide a structural boundary.

There is inadequate guarding across the second floor doorway from the D elevator to the fuel storage basin. The fuel storage basin should not be entered without proper head protection.

Wooden planking was used to cover the fuel storage basin. Special care and structural assessment are needed before relying on this material for support.

Confined Spaces

There are numerous confined spaces under concrete cover blocks, in accessible water basins, and in drains, manways, and valve pits around the building. Confined spaces shall only be entered after following the prescribed actions listed in *Industrial Safety Manual*, WHC-CM-4-3, Section W-13.

Energy Sources

The facility is powered by a single 480-volt electrical feed with dry-type stepdown transformers for lighting distribution. The switchgear is aged and must be operated with extra caution. Written authorization and work instructions are required for all 480-volt switchgear operations. All electrical lines should be considered to be energized until proven otherwise.

There are missing conduit closures, light bulbs, and fixture covers on items that may contain energized wires, some of which may be bare. DO NOT TOUCH ANY ELECTRICAL WIRING OR TRANSFER EQUIPMENT UNLESS SPECIFICALLY ADDRESSED IN AN ASSIGNED WORK PACKAGE.

Extension cords have been used in the past to supply portable heaters. These may be energized and may present an overload or fire hazard.

Openings in electrical and instrumentation cabinets may contain energized stabs and must be avoided until covered or removed.

There is old rigging material/equipment in the facility. None of this material/equipment shall be placed into service until certified for use and tagged accordingly.

105-B REACTOR BUILDING

7.0 HAZARDS IDENTIFIED (Continued)

Hygiene Hazards

Asbestos. Piping, electrical wire insulation, and ventilation components are insulated with asbestos-containing materials, and transite is used in certain structural components. Asbestos is normally maintained in a nonfriable condition. However, the asbestos-containing material is subject to deterioration and friable asbestos may be encountered. Any cracks or holes in the transite siding may provide an avenue for this material to become friable and should be avoided.

Animals and Insects. The facility is subject to periodic animal intrusion, most commonly by birds or mice although larger animals could be encountered. Animal feces should be avoided because it is a health hazard and may be radiologically contaminated. Spiders are common throughout the facility. Bats have been sighted in some retired reactor facilities and may be encountered in the facility. Bull snakes and rattlesnakes are in the area and have been encountered in other facilities in the past.

Chemicals. Recently, liquid chlorine pails and spray cans have been found in the building. These items have been or will be removed for proper disposal. This emphasizes the fact that the potential exists for discovering old containers in any surplus facility. If chemicals or containers are found, they must not be disturbed and the building administrator shall be notified.

Lead. Lead brick and sheeting were used for shielding purposes throughout the building. Some of this lead remains within the structure and should be avoided because of oxidation potential.

105-B REACTOR BUILDING

116-B REACTOR EXHAUST STACK

1.0 LOCATION

The 116-B Reactor Exhaust Stack is located east of the 105-B Reactor Building in the 100-B/C Area.

2.0 PURPOSE/HISTORY

The 116-B Exhaust Stack was used to discharge ventilation air 61 m (200 ft) above grade from the 105-B Building. Exhaust air flowed through concrete ducts from the 105-B Building directly out the exhaust stack. After the confinement project was completed in the 1950's, the air was diverted through underground, reinforced concrete ducts to the 117-B Filter Building. After flowing through the filters, the air went through belowgrade and abovegrade concrete ducts into the exhaust stack.

3.0 DESCRIPTION/DIMENSIONS

The 116-B Reactor Exhaust Stack is 61 m (200 ft) above grade and 3.1 m (10 ft) below grade, with a 4.9-m (16 ft) outside diameter at base. The stack is a monolithic, reinforced concrete structure. In general, the wall thickness is 0.5 m (1.5 ft) at the base and 0.3 m (1 ft) at the top. An opening at the bottom with a steel door cover provides access to the interior of the stack. The stack is supported on a solid concrete base, which is in turn supported by a solid concrete, octagonal-shaped foundation. The octagonal base measures 5.6 m (18.5 ft) side-to-side, and is 3.5 m (11.5 ft) thick. The bottom octagonal foundation measures 8.2 m (27 ft) side-to-side, and is 1.8 m (6 ft) thick.

4.0 REFERENCE

Photograph: 92080357-26CN

116-B REACTOR EXHAUST STACK**5.0 UTILITIES AND SAFETY SYSTEMS**

Intrusion Alarm	Yes []	No [x]	Unknown []
Heat	Yes []	No [x]	Unknown []
Ventilation	Yes []	No [x]	Unknown []
Air Conditioning	Yes []	No [x]	Unknown []
Electricity	Yes []	No [x]	Unknown []
Fire Detection	Yes []	No [x]	Unknown []
Fire Suppression	Yes []	No [x]	Unknown []
Compressed Air	Yes []	No [x]	Unknown []
Vacuum Air	Yes []	No [x]	Unknown []
Breathing Air	Yes []	No [x]	Unknown []
Water	Yes []	No [x]	Unknown []
Drain	Yes []	No [x]	Unknown []
Emergency Shower	Yes []	No [x]	Unknown []
Exclusion Fence	Yes [x]	No []	Unknown []
Air Sampling	Yes []	No [x]	Unknown []

6.0 BUILDING PHYSICAL STATUS

Interior Condition:	To be determined
Exterior Condition:	To be determined
Roof Condition:	To be determined
Operational Equipment:	To be determined
Radiological Products:	To be determined
Chemical Products:	To be determined

7.0 HAZARDS IDENTIFIED

This building is isolated and should not be entered unless a specific safety appraisal is performed prior to entry.

Because of the nature and age of the facilities, conditions and potential hazards will change periodically. Therefore, caution must be taken by all personnel entering the facility to ensure personal safety.

In addition, the facility is subject to periodic vermin intrusion. Animal feces should be avoided because it is a health hazard and may be radiologically contaminated. Spiders, bull snakes, and rattlesnakes are common throughout the area and have been encountered in other facilities in the past.

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116-B REACTOR EXHAUST STACK

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185-B WATER TREATMENT PLANT

1.0 LOCATION

The 185-B Water Treatment Plant is located in 100-B/C Area.

2.0 PURPOSE/HISTORY

Originally, the 185-B Water Treatment Plant was intended as a deaerating plant, but it now serves as a maintenance and storage area.

3.0 DESCRIPTION/DIMENSIONS

The 185-B Water Treatment Plant is a steel and concrete block structure that measures 93.6 m by 14.6 m by 18.3 m (307 ft by 48 ft by 60 ft). It has a reinforced concrete foundation and a precast concrete slab roof with built-up tar and gravel surfacing. The building adjoins the 190-B Building and shares a common wall. The original mounting pedestals for the deaerators have been removed so that a large expanse of flat area exists. Building services are limited. At one time the building contained a water laboratory, an instrument shop, and an engineering test facility.

4.0 REFERENCE

Drawing: W-71742

Photograph: 92080357-32CN

5.0 UTILITIES AND SAFETY SYSTEMS

Intrusion Alarm	Yes []	No [x]	Unknown []
Heat	Yes []	No [x]	Unknown []
Ventilation	Yes []	No [x]	Unknown []
Air Conditioning	Yes []	No [x]	Unknown []
Electricity	Yes []	No [x]	Unknown []
Fire Detection	Yes []	No [x]	Unknown []
Fire Suppression	Yes []	No [x]	Unknown []
Compressed Air	Yes []	No [x]	Unknown []
Vacuum Air	Yes []	No [x]	Unknown []
Breathing Air	Yes []	No [x]	Unknown []
Water	Yes []	No [x]	Unknown []
Drain	Yes [x]	No []	Unknown []
Emergency Shower	Yes []	No [x]	Unknown []
Exclusion Fence	Yes []	No [x]*	Unknown []
Air Sampling	Yes []	No [x]	Unknown []

*Inside perimeter fence.

185-B WATER TREATMENT FACILITY

6.0 BUILDING PHYSICAL STATUS

Interior Condition:	Fair
Exterior Condition:	Poor
Roof Condition:	Poor
Operational Equipment:	Not applicable
Radiological Products:	To be determined
Chemical Products:	To be determined

7.0 HAZARDS IDENTIFIED

This building is isolated and should not be entered unless a specific safety appraisal is performed prior to entry.

Because of the nature and age of the facilities, conditions and potential hazards will change periodically. Therefore, caution must be taken by all personnel entering the facility to ensure personal safety.

The facility is subject to periodic vermin intrusion. Animal feces should be avoided as it is a health hazard and may be radiologically contaminated. Spiders, bull snakes, and rattlesnakes are common throughout the area and have been encountered in other facilities in the past.

185-B WATER TREATMENT FACILITY

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190-B PUMPHOUSE

1.0 LOCATION

The 190-B Pumphouse is located in the 100-B/C Area.

2.0 PURPOSE/HISTORY

The 190-B Pumphouse contained water process and service pumps and ventilation equipment. The purpose was to supply treated water to the reactor and other equipment requiring cooling water. The building is a concrete and concrete block structure. The building's equipment has been removed and is prepared for demolition.

3.0 DESCRIPTION/DIMENSIONS

The 190-B Pumphouse is a one-story, reinforced concrete structure. The building has a concrete foundation, a steel frame, a concrete block superstructure, and a precast concrete roof covered with tar and gravel surfacing. The building's dimensions are 139 m by 56 m (456 ft by 184 ft). The building is parallel and contiguous with the 185-B Building and shares a common wall. The 190-B Pumphouse contained four large steel water storage tanks, capable of storing 26.5 million L (7 million gal) of purified water and a number of electrically driven 378,500-L (100,000-gal) /min pumps used for reactor cooling. The 190-B Annex was constructed of structural steel, corrugated asbestos, and cement. The roof is light-weight, aggregate concrete surfaced with built-up tar and gravel roofing. The 190-B Annex was completely removed by a salvage contractor in fiscal year 1979.

4.0 REFERENCE

Drawing: W-71743

Photograph: 93070619-97CN

190-B PUMPHOUSE

5.0 UTILITIES AND SAFETY SYSTEMS

Intrusion Alarm	Yes []	No [x]	Unknown []
Heat	Yes []	No [x]	Unknown []
Ventilation	Yes []	No [x]	Unknown []
Air Conditioning	Yes []	No [x]	Unknown []
Electricity	Yes []	No [x]	Unknown []
Fire Detection	Yes []	No [x]	Unknown []
Fire Suppression	Yes []	No [x]	Unknown []
Compressed Air	Yes []	No [x]	Unknown []
Vacuum Air	Yes []	No [x]	Unknown []
Breathing Air	Yes []	No [x]	Unknown []
Water	Yes []	No [x]	Unknown []
Drain	Yes []	No [x]	Unknown []
Emergency Shower	Yes []	No [x]	Unknown []
Exclusion Fence	Yes []	No [x]*	Unknown []
Air Sampling	Yes []	No [x]	Unknown []

*Inside perimeter fence.

6.0 BUILDING PHYSICAL STATUS

Interior Condition:	To be determined
Exterior Condition:	To be determined
Roof Condition:	To be determined
Operational Equipment:	To be determined
Radiological Products:	To be determined
Chemical Products:	To be determined

7.0 HAZARDS IDENTIFIED

This building is isolated and not to be entered until decommissioning starts. A specific safety appraisal will be performed at that time.

190-B PUMPHOUSE

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1608-B GAS LINE PRESSURE/VACUUM SEAL HOUSE**1.0 LOCATION**

The 1608-B Gas Line Pressure/Vacuum Seal House (sometimes referred to as 1608-B Effluent Waste Water Pumping Station) is located in the 100-B/C Area.

2.0 PURPOSE/HISTORY

This facility contained the apparatus to provide a gas line pressure/vacuum for the 105-B Reactor gas system.

3.0 DESCRIPTION/DIMENSIONS

This facility is 9.8 m (32 ft) below grade, 3.7 m (12 ft) long, and 3.7 m (12 ft) wide. The facility consists of (1) a small wooden framed structure to provide entry to the lower section, and (2) a belowgrade concrete structure. The roof on the frame structure is a wood frame with composition surface. Two tanks providing a gas system seal are in place.

4.0 REFERENCE

Photograph: 92080357-25CN

5.0 UTILITIES AND SAFETY SYSTEMS

Intrusion Alarm	Yes []	No [x]	Unknown []
Heat	Yes []	No [x]	Unknown []
Ventilation	Yes []	No [x]	Unknown []
Air Conditioning	Yes []	No [x]	Unknown []
Electricity	Yes [x]	No []	Unknown []
Fire Detection	Yes []	No [x]	Unknown []
Fire Suppression	Yes []	No [x]	Unknown []
Compressed Air	Yes []	No [x]	Unknown []
Vacuum Air	Yes []	No [x]	Unknown []
Breathing Air	Yes []	No [x]	Unknown []
Water	Yes []	No [x]	Unknown []
Drain	Yes []	No [x]	Unknown []
Emergency Shower	Yes []	No [x]	Unknown []
Exclusion Fence	Yes [x]	No []	Unknown []
Air Sampling	Yes []	No [x]	Unknown []

1608-B GAS LINE PRESSURE/VACUUM SEAL HOUSE

6.0 BUILDING PHYSICAL STATUS

Interior Condition:	Fair
Exterior Condition:	Poor
Roof Condition:	Poor
Operational Equipment:	Not applicable
Radiological Products:	To be determined
Chemical Products:	To be determined

7.0 HAZARDS IDENTIFIED

This building is isolated and not to be entered unless a specific safety appraisal is performed prior to entry.

Because of the nature and age of the facilities, conditions and potential hazards will change periodically. Therefore, caution must be taken by all personnel entering the facility to ensure personal safety.

The facility is subject to periodic vermin intrusion. Animal feces should be avoided as it is a health hazard and may be radiologically contaminated. Spiders, bull snakes, and rattlesnakes are common throughout the area and have been encountered in other facilities in the past.

1608-B GAS LINE PRESSURE/VACUUM SEAL HOUSE

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1701-BA EXCLUSION AREA BADGE HOUSE**1.0 LOCATION**

The 1701-BA Exclusion Area Badge House is located at the entrance to 105-B exclusion area.

2.0 PURPOSE/HISTORY

The 1701-BA Exclusion Area Badge House provides a shelter for a security check prior to entrance to the exclusion area.

3.0 DESCRIPTION/DIMENSIONS

The building's dimensions are 6.1 m by 6.1 m by 3.7 m (20 ft by 20 ft by 12 ft), with a total area of 37.2 m² (400 ft²). It is a one-story concrete block structure on a concrete floor and foundation. The building has a gable wooden roof covered with roll roofing. It houses a portal monitor for personnel to use after entering facilities inside the exclusion area and before leaving the area.

4.0 REFERENCE

Photograph: 92080357-20CN

5.0 UTILITIES AND SAFETY SYSTEMS

Intrusion Alarm	Yes []	No [x]	Unknown []
Heat	Yes [x]	No []	Unknown []
Ventilation	Yes [x]	No []	Unknown []
Air Conditioning	Yes [x]	No []	Unknown []
Electricity	Yes [x]	No []	Unknown []
Fire Detection	Yes []	No [x]	Unknown []
Fire Suppression	Yes []	No [x]	Unknown []
Compressed Air	Yes []	No [x]	Unknown []
Vacuum Air	Yes []	No [x]	Unknown []
Breathing Air	Yes []	No [x]	Unknown []
Water	Yes [x]	No []	Unknown []
Drain	Yes [x]	No []	Unknown []
Emergency Shower	Yes []	No [x]	Unknown []
Exclusion Fence	Yes [x]*	No []	Unknown []
Air Sampling	Yes []	No [x]	Unknown []

*Is part of the exclusion fence.

1701-BA EXCLUSION AREA BADGE HOUSE

6.0 BUILDING PHYSICAL STATUS

Interior Condition:	Fair
Exterior Condition:	Poor
Roof Condition:	Poor
Operational Equipment:	Not applicable
Radiological Products:	To be determined
Chemical Products:	To be determined

7.0 HAZARDS IDENTIFIED

As the result of specific building walkthroughs by senior safety and engineering personnel, the most significant safety hazards have been identified. However, because of the nature and age of the facilities, conditions and potential hazards will change periodically. Therefore, caution must be taken by all personnel entering the facility to ensure personal safety.

Specific hazards that have been identified include (1) open plugs near plumbing fixtures with no ground fault interrupt protection and (2) visible water damage on the ceiling and walls. However, there is no evidence of structural damage.

The facility is subject to periodic vermin intrusion. Animal feces should be avoided because it is a health hazard and may be radiologically contaminated. Spiders, bull snakes, and rattlesnakes are common throughout the area and have been encountered in other facilities in the past.

1701-BA EXCLUSION AREA BADGE HOUSE

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105-C REACTOR BUILDING

1.0 LOCATION

The 105-C Reactor Building is located in the southeast corner of 100-B/C Area.

2.0 PURPOSE/HISTORY

The 105-C Reactor Building provided housing for the nuclear reactor and directly associated equipment used in reactor operations.

3.0 DESCRIPTION/DIMENSION

The 105-C Reactor Building is similar to the 105-B Reactor Building, except that it has a larger L-shaped building size and the layout is different. The building is 105.5 m by 45.7 m by 36.6 m (346 ft by 150 ft by 120 ft) and 45.7 m by 27.4 m by 6.1 m (150 ft by 90 ft by 20 ft).

Except for reinforced concrete portions, the building can be classified as a light, non-airtight industrial structure. The lower portion of the building is made of reinforced concrete and the upper portion is made of concrete block or corrugated asbestos cement. The massive reinforced concrete walls (0.9 m to 1.5 m [3 ft to 5 ft] thick) around the reactor block at the lower levels provide additional radiation shielding. The roof is constructed of laminated gypsum board. The roof is cast concrete over the discharge area.

An extensive ventilation system provided ventilation for personnel comfort and contained the radioactive contamination through controlled pressure zone air flow.

Reactor Block. The reactor block is located near the center of the building. When facing the reactor front face, the horizontal control rod penetrations are on the left side of the reactor block, and the safety rod penetrations are adjacent to the rear face of the reactor block. Experimental test penetrations are on the right side. The reactor block consists of a graphite moderator stack encased in cast iron thermal shielding, a biological shield consisting of alternating layers of masonite and steel on the four sides, and a 2.1-m (7-ft) -thick heavy aggregate poured shield on top. The entire block rests on a massive concrete foundation. The block weighs approximately 9,145 metric tons (9,000 tons) and is 14 m high by 14 m wide by 12.2 m deep (46 ft high by 46 ft wide by 40 ft deep).

105-C REACTOR BUILDING

3.0 DESCRIPTION/DIMENSION (Continued)

Storage Basin. The fuel storage basin served as an underwater collection, storage, and transfer facility for the irradiated fuel elements discharged from the reactor. It consists of a fuel element pickup area, storage area, and transfer area. Irradiated fuel elements were sorted and placed in storage containers in the pickup area, transported by monorail to the storage area, and held to allow decay of short-lived radionuclides prior to reprocessing. Following storage, the buckets of fuel elements were moved to the transfer area, placed in lead-shielded casks, and moved into a railroad well for transport to the chemical processing facilities. A wash pad, which was used for equipment decontamination, and an underwater inspection facility are also in the storage basin area.

The total area of the fuel storage basin, including the fuel element pickup and transfer areas, is approximately 929 m² (10,000 ft²). The basin is 6.7 m (22 ft) deep, has either a wooden slotted or steel grating floor, and contains 6.1 m (20 ft) of water during operating periods. The average thickness of the outside walls and bottom of the basin is 50.8 cm (20 in.) and 15.2 cm (6 in.), respectively. The fuel storage basin at the 105-C Reactor Building had a special irradiated fuel examination basin appended to the regular storage basin. This facility contained special manipulators, viewing stations, and tools for handling and examining the fuel remotely under 6.1 m (20 ft) of water.

4.0 REFERENCE

Photograph: 93070619-101CN

5.0 UTILITIES AND SAFETY SYSTEMS

Intrusion Alarm	Yes ☒	No ☐	Unknown ☐
Heat	Yes ☒ *	No ☐	Unknown ☐
Ventilation	Yes ☐	No ☒	Unknown ☐
Air Conditioning	Yes ☐	No ☒	Unknown ☐
Electricity	Yes ☒	No ☐	Unknown ☐
Fire Detection	Yes ☐	No ☒	Unknown ☐
Fire Suppression	Yes ☒	No ☐	Unknown ☐
Compressed Air	Yes ☐	No ☒	Unknown ☐
Vacuum Air	Yes ☐	No ☒	Unknown ☐
Breathing Air	Yes ☐	No ☒	Unknown ☐
Water	Yes ☐	No ☒	Unknown ☐
Drain	Yes ☒	No ☐	Unknown ☐
Emergency Shower	Yes ☐	No ☒	Unknown ☐
Exclusion Fence	Yes ☒	No ☐	Unknown ☐
Air Sampling	Yes ☐	No ☒	Unknown ☐

*Space heaters in the control room.

105-C REACTOR BUILDING

6.0 BUILDING PHYSICAL STATUS

Interior Condition:	Poor
Exterior Condition:	Poor
Roof Condition:	Poor
Operational Equipment:	Poor
Radiological Products:	Activation Products
Chemical Products:	Asbestos, others to be determined during decommissioning

7.0 HAZARDS IDENTIFIED

Radiological Hazards

The 105-C Reactor Building is a radiologically controlled area. Radioactive contamination is essentially all activation and corrosion products (beta-gamma emitters) from reactor operations. Routine entry and exit requirements are identified in the Radiation Work Permit (RWP), which is posted at the facility entrance. Nonroutine activities require a special RWP be prepared. RWP requirements are mandatory.

Surface Contamination Areas

Personnel must stay clear of posted surface contamination areas in the 105-C Reactor Building. Specific posted surface contamination areas include the fuel storage basins, the C elevator at the front face, the entire rear face area, the stairs, and the front face storage room. The RWP for each of these areas defines anticontamination clothing requirements for access to these areas.

Industrial Hazards

The 105-C Reactor Building is an inactive facility which is entered on a monthly surveillance basis. All areas of the building have precast gypsum panels that have severely deteriorated. The entire building is a hard-hat area. The front face work area, the control room, and office spaces are reasonably free of other hazards. Because other areas of the facility are less frequently entered, additional caution and preplanning are warranted when entering these areas.

Fall Hazards

The absence of guardrails on the building's multilevel flat roofs presents a potential fall hazard.

Roof structures are in very poor condition. Visual inspection of the roof surface will not always indicate structural integrity, and some cracked roofing panels have been noted. ALL ACCESS TO ROOF STRUCTURES REQUIRES SPECIFIC SAFETY EVALUATIONS AND WRITTEN AUTHORIZATION FROM THE FACILITY MANAGER.

105-C REACTOR BUILDING

7.0 HAZARDS IDENTIFIED (Continued)

Stairs, handrails, and guardrails around the facility stairs and subgrade structures are old and have deteriorated in some cases. Wooden stairs and handrails are the most suspect and should not be relied on to provide a structural boundary.

Wooden planking was used to cover the fuel storage basin. Special care and structural assessment are needed before relying on this material for support.

Water damage has caused numerous floor tiles to become loose, which may provide a slipping or tripping hazard.

Energy Sources

The facility is powered by a single 480-volt electrical feed with dry-type stepdown transformers for lighting distribution. The switchgear is aged and must be operated with extra caution. Written authorization and work instructions are required for all 480-volt switchgear operations. All electrical lines should be considered to be energized until proven otherwise.

There are missing conduit closures, light bulbs, and fixture covers on items that may contain energized wires, some of which may be bare. DO NOT TOUCH ANY ELECTRICAL WIRING OR TRANSFER EQUIPMENT UNLESS SPECIFICALLY ADDRESSED IN AN ASSIGNED WORK PACKAGE.

Extension cords have been used in the past to supply portable heaters and some exterior lighting. These may be energized and may present an overload or fire hazard.

Openings in electrical and instrumentation cabinets may contain energized stabs and must be avoided until covered or removed.

There is old rigging material/equipment in the facility. None of this material/equipment shall be placed into service until it is certified for use and tagged accordingly.

Because the C elevator is not pinned nor blocked, no access to the elevator platform is allowed until the platform is mechanically supported (i.e., blocked or pinned).

Confined Spaces

There are numerous confined spaces under concrete cover blocks, in accessible water basins, and in drains, manways, and valve pits around the building. Confined spaces shall be entered after following the prescribed actions listed in the *Industrial Safety Manual*, WHC-CM-4-3, Section W-13.

105-C REACTOR BUILDING

7.0 HAZARDS IDENTIFIED (Continued)

Hygiene Hazards

Asbestos. Piping, electrical wire insulation, and ventilation components are insulated with asbestos-containing materials, and transite is used in certain structural components. Asbestos is normally maintained in a nonfriable condition; however, the asbestos-containing material is subject to deterioration, and friable asbestos may be encountered. Exterior ventilation duct work is insulated with material that is encased in a silver coat that contains asbestos. This insulation is in poor condition and should be avoided. Any cracks or holes in the transite siding may provide an avenue for this material to become friable and should be avoided.

Animals and Insects. The facility is subject to periodic animal intrusion, most commonly by birds or mice although larger animals could be encountered. Animal feces should be avoided because it is a health hazard and may be radiologically contaminated. Spiders are common throughout the facility. Bats have been sighted in some retired reactor facilities and may be encountered in the facility. Bull snakes and rattlesnakes are in the area and have been encountered in this facility in the past.

Chemicals. Solvents, grease, oil, and spray cans have recently been found in the building. These items have been or will be removed for proper disposal. This emphasizes the fact that the potential remains for discovering old containers in any surplus facility. If chemicals or containers are found, they must not be disturbed and the building administrator shall be notified.

Lead. Lead brick and sheeting were used for shielding purposes throughout the building. Some of this lead remains within the structure and should be avoided because of the oxidation potential.

105-C REACTOR BUILDING

183-C FILTER PLANT/PUMPROOM

1.0 LOCATION

The 183-C Filter Plant/Pumphoom is located in the 100-B/C Area.

2.0 PURPOSE/HISTORY

This building housed water treatment and filtering facilities and provided reservoir capacity for treated water.

3.0 DESCRIPTION/DIMENSIONS

The 183-C Filter Plant/Pumphoom is similar to 183-B Water Treatment Facility except larger, 96.3 m by 87.8 m (316 ft by 288 ft), and supplied part of the treated water to B Reactor. It consisted of a headhouse and chemical building (which were sold to a salvage contractor and removed), flocculation and sedimentation basins (which were removed on the Site Cleanup Program), and clearwell storage with pumphoom. The clearwells consisted of four structural steel tanks (which were sold to a salvage contractor and removed).

Filter Building. The Filter Building is a reinforced concrete and concrete block building that housed the filter beds and controls. Built in two halves with a gullet between, the filter consisted of graded gravel, sand, and graded anthracite coal. Backwashing was accomplished through the use of purified water from the clearwells. Discharge of the backwash water was through the gullet to a sewer. Total filter area is approximately 1,282 m² (13,800 ft²).

Pumphoom. The pumphoom is a reinforced concrete structure largely below grade. Equipment included transfer pumps for the primary reactor cooling water, backwash pumps, high tank pumps, and pumps for power house water, fire, sanitary water, and emergency filtered water. Electric power reduced from 13.8 kV to 2300 V entered the pump house from transformer stations located at the building.

4.0 REFERENCE

Photograph: 93070619-92CN

183-C FILTER PLANT/PUMPROOM

5.0 UTILITIES AND SAFETY SYSTEMS

Intrusion Alarm	Yes []	No [x]	Unknown []
Heat	Yes []	No [x]	Unknown []
Ventilation	Yes []	No [x]	Unknown []
Air Conditioning	Yes []	No [x]	Unknown []
Electricity	Yes []	No [x]	Unknown []
Fire Detection	Yes []	No [x]	Unknown []
Fire Suppression	Yes []	No [x]	Unknown []
Compressed Air	Yes []	No [x]	Unknown []
Vacuum Air	Yes []	No [x]	Unknown []
Breathing Air	Yes []	No [x]	Unknown []
Water	Yes []	No [x]	Unknown []
Drain	Yes []	No []	Unknown [x]
Emergency Shower	Yes []	No [x]	Unknown []
Exclusion Fence	Yes []	No [x]	Unknown []
Air Sampling	Yes []	No [x]	Unknown []

6.0 BUILDING PHYSICAL STATUS

Interior Condition:	Fair
Exterior Condition:	Poor
Roof Condition:	Poor
Operational Equipment:	Not applicable
Radiological Products:	To be determined
Chemical Products:	To be determined

7.0 HAZARDS IDENTIFIED

This building is isolated and not to be entered unless a specific safety appraisal is performed prior to entry. Because of the nature and age of the facilities, conditions and potential hazards will change periodically. Therefore, caution must be taken by all personnel entering the facility to ensure personal safety.

In addition, the facility is subject to periodic vermin intrusion. Animal feces should be avoided as it is a health hazard and may be radiologically contaminated. Spiders, bull snakes, and rattlesnakes are common throughout the area and have been encountered in other facilities in the past.

183-C FILTER PLANT/PUMPROOM

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1702-C BADGE HOUSE**1.0 LOCATION**

The 1702-C Badge House is located at the entrance to 105-C exclusion area.

2.0 PURPOSE/HISTORY

The 1702-C Badge House provided shelter for a security check prior to entrance to the 105-C exclusion area.

3.0 DESCRIPTION/DIMENSIONS

The 1702-C Badge House is a one-story wooden framed structure, with a total area of 19.5 m² (210 ft²). It has a concrete floor and foundation, with asbestos shake siding and a flat wooden roof covered with roll roofing.

4.0 REFERENCE

Photograph: 92080357-28CN

5.0 UTILITIES AND SAFETY SYSTEMS

Intrusion Alarm	Yes []	No [x]	Unknown []
Heat	Yes []	No [x]	Unknown []
Ventilation	Yes []	No [x]	Unknown []
Air Conditioning	Yes []	No [x]	Unknown []
Electricity	Yes [x]	No []	Unknown []
Fire Detection	Yes []	No [x]	Unknown []
Fire Suppression	Yes []	No [x]	Unknown []
Compressed Air	Yes []	No [x]	Unknown []
Vacuum Air	Yes []	No [x]	Unknown []
Breathing Air	Yes []	No [x]	Unknown []
Water	Yes []	No [x]	Unknown []
Drain	Yes []	No []	Unknown [x]
Emergency Shower	Yes []	No [x]	Unknown []
Exclusion Fence	Yes [x]	No []	Unknown []
Air Sampling	Yes []	No [x]	Unknown []

1702-C BADGE HOUSE

6.0 BUILDING PHYSICAL STATUS

Interior Condition:	Fair
Exterior Condition:	Poor
Roof Condition:	Poor
Operational Equipment:	Not applicable
Radiological Products:	To be determined
Chemical Products:	To be determined

7.0 HAZARDS IDENTIFIED

This access guardhouse is no longer in use and is in poor condition. No entry is authorized without the specific written direction of the building administrator.

This building is isolated and not to be entered unless a specific safety appraisal is performed prior to entry. Visual inspection of the roof surface will not always indicate structural integrity, and some cracked roofing panels have been noted. ALL ACCESS TO ROOF STRUCTURES REQUIRES SPECIFIC SAFETY EVALUATIONS AND WRITTEN AUTHORIZATION FROM THE FACILITY MANAGER.

Because of the nature and age of the facilities, conditions and potential hazards will change periodically. Therefore, caution must be taken by all personnel entering the facility to ensure personal safety.

The facility is subject to periodic vermin intrusion. Animal feces should be avoided as it is a health hazard and may be radiologically contaminated. Spiders, bull snakes, and rattlesnakes are common throughout the area and have been encountered in other facilities in the past.

1702-C BADGE HOUSE

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1714-C SOLVENT STORAGE BUILDING**1.0 LOCATION**

The 1714-C Solvent Storage Building is located in the 100-B/C Area, approximately 47.5 m (156 ft) south of 105-C, near 117-C.

2.0 PURPOSE/HISTORY

The 1714-C Solvent Storage Building was used as an oil house to store miscellaneous oil and solvents.

3.0 DESCRIPTIONS AND DIMENSIONS

This building is a small steel-framed, transite-sided storage building on a concrete foundation.

4.0 REFERENCE

Photograph: 92080357-29CN

5.0 UTILITIES AND SAFETY SYSTEMS

Intrusion Alarm	Yes []	No [x]	Unknown []
Heat	Yes []	No [x]	Unknown []
Ventilation	Yes []	No [x]	Unknown []
Air Conditioning	Yes []	No [x]	Unknown []
Electricity	Yes [x]	No []	Unknown []
Fire Detection	Yes []	No [x]	Unknown []
Fire Suppression	Yes []	No [x]	Unknown []
Compressed Air	Yes []	No [x]	Unknown []
Vacuum Air	Yes []	No [x]	Unknown []
Breathing Air	Yes []	No [x]	Unknown []
Water	Yes []	No [x]	Unknown []
Drain	Yes []	No [x]	Unknown []
Emergency Shower	Yes []	No [x]	Unknown []
Exclusion Fence	Yes [x]	No []	Unknown []
Air Sampling	Yes []	No [x]	Unknown []

1714-C SOLVENT STORAGE BUILDING

6.0 BUILDING PHYSICAL STATUS

Interior Condition:	Fair
Exterior Condition:	Poor
Roof Condition:	Poor
Operational Equipment:	Not applicable
Radiological Products:	To be determined
Chemical Products:	To be determined

7.0 HAZARD IDENTIFICATION

The transite siding is subject to the same friability concerns as is noted for the 105-C Reactor Building siding.

This building is isolated and not to be entered unless a specific safety appraisal is performed prior to entry. Visual inspection of the roof surface will not always indicate structural integrity, and some cracked roofing panels have been noted. ALL ACCESS TO ROOF STRUCTURES REQUIRES SPECIFIC SAFETY EVALUATIONS AND WRITTEN AUTHORIZATION FROM THE FACILITY MANAGER.

Because of the nature and age of the facilities, conditions and potential hazards will change periodically. Therefore, caution must be taken by all personnel entering the facility to ensure personal safety.

In addition, the facility is subject to periodic vermin intrusion. Animal feces should be avoided as it is a health hazard and may be radiologically contaminated. Spiders, bull snakes, and rattlesnakes are common throughout the area and have been encountered in other facilities in the past.

1714-C SOLVENT STORAGE BUILDING

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103-D FRESH METAL STORAGE BUILDING**1.0 LOCATION**

The 103-D Fresh Metal Storage Building is located in the 100-D/DR Area. The coordinates are N93550, W52750.

2.0 PURPOSE/HISTORY

Originally, this building was used to store pallets of fresh fuel elements before use in the reactor. The 103-D Fresh Metal Storage Building was in service from 1944 to the present (however, not for the original purpose). The facility is now used for miscellaneous storage.

3.0 DESCRIPTION/DIMENSIONS

This building is 142.6 m (468 ft) high, while the watertable is 117.7 m (386 ft). This one-story building is a reinforced concrete and concrete block structure with a concrete foundation and floor, concrete block walls, and concrete roof with a reinforced concrete, floor-level loading platform. The building's dimensions are 16.2 m by 8.2 m by 4.4 m (53 ft by 27 ft by 14.5 ft) with a total area of 133 m² (1,431 ft²). The building is now potentially contaminated because of previous storage of radioactive material. While most of the contamination has been fixed by painting the building's interior surfaces, smearable contamination possibly exists in cracks in the building's walls, floors, and ceiling. The radioactive level is less than 200 cpm.

4.0 REFERENCE

Drawing: W-69375

Photograph: 92080357-38CN

5.0 UTILITIES AND SAFETY SYSTEMS

Intrusion Alarm	Yes []	No [x]	Unknown []
Heat	Yes []	No [x]	Unknown []
Ventilation	Yes []	No [x]	Unknown []
Air Conditioning	Yes []	No [x]	Unknown []
Electricity	Yes [x]	No []	Unknown []
Fire Detection	Yes []	No [x]	Unknown []
Fire Suppression	Yes []	No [x]	Unknown []
Compressed Air	Yes []	No [x]	Unknown []
Vacuum Air	Yes []	No [x]	Unknown []
Breathing Air	Yes []	No [x]	Unknown []
Water	Yes []	No [x]	Unknown []
Drain	Yes []	No []	Unknown [x]
Emergency Shower	Yes []	No [x]	Unknown []
Exclusion Fence	Yes [x]	No []	Unknown []
Air Sampling	Yes []	No [x]	Unknown []

103-D FRESH METAL STORAGE BUILDING

6.0 BUILDING PHYSICAL STATUS

Interior Condition:	Fair
Exterior Condition:	Poor
Roof Condition:	Poor
Operational Equipment:	Not applicable
Radiological Products:	To be determined
Chemical Products:	To be determined

7.0 HAZARDS IDENTIFIED

As the result of specific building walkthroughs by senior safety and engineering personnel, the most significant hazards have been identified. However, because of the nature and age of the facilities, conditions and potential hazards will change periodically. Therefore, caution must be taken by all personnel entering the facility to ensure personal safety.

This building is prone to the same type of concerns as outlined for the 105-D Reactor Building. Specific items have been identified, such as (1) the back interior door may be confused for an exit and is not; and (2) there are numerous open electrical panels and wires, although at present there is no electricity in the building. In addition, there are numerous unmarked belowgrade confined spaces around the building.

The facility is subject to periodic vermin intrusion. Animal feces should be avoided because it is a health hazard and may be radiologically contaminated. Spiders, bull snakes, and rattlesnakes are common throughout the area and have been encountered in other facilities in the past.

103-D FRESH METAL STORAGE BUILDING

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105-D REACTOR BUILDING

1.0 LOCATION

The 105-D Reactor Building is located in the south end of the 100-D/DR exclusion area fence.

2.0 PURPOSE/HISTORY

The 105-D Reactor Building is an inactive radioactive material production unit (deactivated production reactor and irradiated fuel storage basin). It was in service from 1950 to 1954 and provided housing for the nuclear reactor and directly associated equipment used in reactor operations.

3.0 DESCRIPTION/DIMENSIONS

Offices: 163.7 m ² (1,762 ft ²)	Shops: 304.2 m ² (3,275 ft ²)
Work Area: 2,678 m ² (28,832 ft ²)	Storage: 357.2 m ² (3,845 ft ²)
Laboratory: 35.3 m ² (380 ft ²)	Common: 1,446.7 m ² (15,573 ft ²)

The building is a light, non-airtight industrial structure with reinforced concrete in the lower portion and concrete block in the upper portion. The reinforced concrete surrounds the reactor block, exhaust air, and discharge gas lines. The remaining facility is a concrete block structure.

The roof is constructed of reinforced concrete and precast concrete roof tile, depending on the specific roof area in question. There is a 61-m (200-ft) reinforced concrete stack, 4.9 m (16 ft) in diameter, at the base. A railroad spur that enters the building on the east side provides access for a railroad cask car to the irradiated fuel transfer facilities. The unit contains an estimated 13,500 Ci of radionuclides, 94 tons of lead, and 2.8 m³ (100 ft³) of asbestos.

Reactor Block. The reactor block is located near the center of the building. When facing the reactor front face, the horizontal control rod penetrations are on the left side of the reactor block, and the safety rod penetrations are on the top of the reactor. Fuel discharge and storage areas are located adjacent to the rear face of the reactor block. Experimental test penetrations are on the right side. The reactor block consists of (1) a graphite moderator stack encased in cast iron thermal shielding, (2) a biological shield consisting of alternating layers of masonite and steel on the four sides, and (3) a 2.1-m (7-ft) -thick, heavy aggregate poured shield on top. The entire block rests on a massive concrete foundation. The block weighs approximately 9,145 metric tons (9,000 tons) and is 14 m (46 ft) high by 14 m wide by 12.2 deep (46 ft wide by 40 ft deep).

105-D REACTOR BUILDING

3.0 DESCRIPTION/DIMENSIONS (Continued)

Storage Basin. The fuel storage basin served as an underwater collection, storage, and transfer facility for the irradiated fuel elements discharged from the reactor. The fuel storage basin consists of a fuel element pickup area, storage area, and transfer area. Irradiated fuel elements were sorted and placed in storage containers in the pickup area, transported by monorail to the storage area, and held to allow decay of short-lived radionuclides prior to reprocessing. Following storage, the buckets of fuel elements were moved to the transfer area, and the chemical processing facilities. A wash pad, which was used for equipment decontamination, and an underwater inspection facility are also in the storage basin area. The total area of the fuel storage basin, including the fuel element pickup and transfer areas, is approximately 929 m² (10,000 ft²). The basin is 6.7 m (22 ft) deep, and has either a wooden slotted or steel grating floor. The fuel storage basin contained 6.1 m (20 ft) of water during operating periods. The average thickness of the outside walls and bottom of the basin is 50.8 cm (20 in.) and 15.2 cm (6 in.), respectively.

4.0 REFERENCE

Photograph: 93070619-43CN

5.0 UTILITIES AND SAFETY SYSTEMS

Intrusion Alarm	Yes ☒	No ☐	Unknown ☐
Heat	Yes ☐	No ☒ *	Unknown ☐
Ventilation	Yes ☐	No ☒	Unknown ☐
Air Conditioning	Yes ☐	No ☒	Unknown ☐
Electricity	Yes ☒	No ☐	Unknown ☐
Fire Detection	Yes ☐	No ☒	Unknown ☐
Fire Suppression	Yes ☐	No ☒	Unknown ☐
Compressed Air	Yes ☐	No ☒	Unknown ☐
Vacuum Air	Yes ☐	No ☒	Unknown ☐
Breathing Air	Yes ☐	No ☒	Unknown ☐
Water	Yes ☒	No ☐	Unknown ☐
Drain	Yes ☒	No ☐	Unknown ☐
Emergency Shower	Yes ☐	No ☒	Unknown ☐
Exclusion Fence	Yes ☒	No ☐	Unknown ☐
Air Sampling	Yes ☐	No ☒	Unknown ☐

*Portable electric heat only.

105-D REACTOR BUILDING

6.0 BUILDING PHYSICAL STATUS

Interior Condition:	Fair
Exterior Condition:	Poor
Roof Condition:	Fair
Operational Equipment:	Poor
Radiological Products:	Activation Products
Chemical Products:	Asbestos, others to be determined during decommissioning

7.0 HAZARDS IDENTIFIED

Radiological Hazards

The 105-D Reactor Building is a radiologically controlled area. Radioactive contamination is essentially all activation and corrosion products (beta-gamma emitters) from reactor operations. Routine entry and exit requirements are identified in the Radiation Work Permit (RWP), which is posted at the facility entrance. Nonroutine activities require a special RWP be prepared. RWP requirements are mandatory.

Surface Contamination Areas

Personnel must stay clear of posted surface contamination areas in the 105-D Reactor Building. Specific posted surface contamination areas include the fuel storage basins, the C elevator at the front face, the entire rear face area, and the stairs. The RWP for each of these areas defines anticontamination clothing requirements for access to these areas.

Industrial Hazards

The 105-D Reactor Building is an inactive facility and is entered on a monthly surveillance basis. All areas of the building have precast gypsum panels that are severely deteriorated. The entire building is a hard-hat area. The front face work area, the control room, and office spaces are reasonably free from other hazards. While other areas of the facility are less frequently entered, additional caution and preplanning are warranted when entering these areas.

Fall Hazards

The absence of guardrails on the building's multilevel flat roofs presents a potential fall hazard.

The building's roof structures are in fair condition. However, visual inspection of the roof surface will not always indicate structural integrity, and some cracked and spalled roofing panels have been noted. ALL ACCESS TO ROOF STRUCTURES REQUIRES SPECIFIC SAFETY EVALUATIONS AND WRITTEN AUTHORIZATION FROM THE FACILITY MANAGER.

105-D REACTOR BUILDING

7.0 HAZARDS IDENTIFIED (Continued)

Stairs, handrails, and guardrails around the facility and subgrade structures are old and, in some cases, deteriorated. Exterior wooden and concrete stairs and handrails are the most suspect and should not be relied on to provide a structural boundary. In addition, oil could be encountered on the floor of the work area and in the accumulator room.

Wooden planking was used to cover the fuel storage basin. Special care and structural assessment are needed before relying on this material for support.

Confined Spaces

There are numerous confined spaces under concrete cover blocks or sheet metal covers, in accessible water basins, and in drains, manways, and valve pits around the building. Confined spaces shall only be entered after following the prescribed actions listed in the *Industrial Safety Manual*, WHC-CM-4-3, Section W-13.

Energy Sources

The facility is powered by a single 480-volt electrical feed with dry-type stepdown transformers for lighting distribution. The switchgear is aged and must be operated with extreme caution. Written authorization and work instructions are required for all 480-volt switchgear operations. All electrical lines should be considered to be energized until proven otherwise.

There are missing conduit closures, light bulbs, and fixture covers on items that may contain energized wires, some of which may be bare. Polychlorinated biphenyl (PCB) ballasts are in use and could be exposed in some instances. Although extensive work has been done to identify and remove these hazards, they still may exist. DO NOT TOUCH ANY ELECTRICAL WIRING OR TRANSFER EQUIPMENT UNLESS SPECIFICALLY ADDRESSED IN AN ASSIGNED WORK PACKAGE.

Extension cords have been used in the past to supply portable heaters. These may be energized and may present an overload or fire hazard. Openings in electrical and instrumentation cabinets may contain energized stabs and must be avoided until covered or removed.

Old rigging material/equipment may be found in the facility. None of this material/equipment shall be placed into service until it is certified for use and tagged accordingly.

105-D REACTOR BUILDING

7.0 HAZARDS IDENTIFIED (Continued)

Asbestos. Piping, electrical wire insulation, and ventilation components are insulated with asbestos-containing materials, and transite is used in certain structural components. While the majority of asbestos has been removed, residue and some hidden or hard-to-reach asbestos may be encountered. Any cracks or holes in the transite siding may provide an avenue for this material to become friable and thus should be avoided. Friable asbestos has been noted on the roof of the basin and possibly under the ventilation units on the south side of the building.

Animals and Insects. The facility is subject to periodic animal intrusion most commonly by birds or mice, although larger animals could be encountered. Animal feces should be avoided as it is a health hazard and may be radiologically contaminated. Spiders are common throughout the facility. Bats have been sighted in some retired reactor facilities and may be encountered in the facility. Bull snakes and rattlesnakes are in the area and have been encountered in this facility in the past.

Chemicals. Bottled chemicals and excess leads have recently been found in the building. These items have been or will be removed for proper disposal. This emphasizes the fact that the potential remains for discovering old containers in any surplus facility. If chemicals or containers are found, they must not be disturbed and the building administrator shall be notified.

Lead. Lead brick and sheeting were used for shielding purposes throughout the building. Some of this lead remains within the structure and should be avoided because of oxidation potential.

105-D REACTOR BUILDING

116-D REACTOR EXHAUST STACK**1.0 LOCATION**

The 116-D Reactor Exhaust Stack is located in the 100-D/DR Area.

2.0 PURPOSE/HISTORY

The 116-D Exhaust Stack discharged ventilation air 61 m (200 ft) above grade from the 105-D Building. Exhaust air flowed through concrete ducts from the 105-D Building directly out the exhaust stack. Following completion of the confinement project in the 1950's, the air was diverted through underground, reinforced concrete ducts to the 117-D Filter Building. After flowing through the filters, the air went through belowgrade and abovegrade concrete ducts into the exhaust stack.

3.0 DESCRIPTION/DIMENSIONS

The stack is a monolithic, reinforced concrete structure 61 m (200 ft) above grade and 3 m (10 ft) below grade, with a 4.9 m (16 ft) outside diameter at the base. In general, the wall thickness is 4.9 m (1.5 ft) at the base and 0.3 m (1 ft) at the top. An opening at the bottom with a steel door cover provides access to the interior of the stack. The stack is supported on a solid concrete base, which is in turn supported by a solid, concrete, octagonal-shaped foundation. The octagonal base measures 5.6 m (18.5 ft) side-to-side and is 3.5 m (11.5 ft) thick. The bottom octagonal foundation measures 8.2 m (27 ft) side-to-side and is 1.8 m (6 ft) thick.

4.0 REFERENCE

Photograph: 92080357-37CN

5.0 UTILITIES AND SAFETY SYSTEMS

Intrusion Alarm	Yes []	No [x]	Unknown []
Heat	Yes []	No [x]	Unknown []
Ventilation	Yes []	No [x]	Unknown []
Air Conditioning	Yes []	No [x]	Unknown []
Electricity	Yes []	No [x]	Unknown []
Fire Detection	Yes []	No [x]	Unknown []
Fire Suppression	Yes []	No [x]	Unknown []
Compressed Air	Yes []	No [x]	Unknown []
Vacuum Air	Yes []	No [x]	Unknown []
Breathing Air	Yes []	No [x]	Unknown []
Water	Yes []	No [x]	Unknown []
Drain	Yes []	No [x]	Unknown []
Emergency Shower	Yes []	No [x]	Unknown []
Exclusion Fence	Yes [x]	No []	Unknown []
Air Sampling	Yes []	No [x]	Unknown []

116-D REACTOR EXHAUST STACK

6.0 BUILDING PHYSICAL STATUS

Interior Condition:	To be determined
Exterior Condition:	To be determined
Roof Condition:	To be determined
Operational Equipment:	To be determined
Radiological Products:	To be determined
Chemical Products:	To be determined

7.0 HAZARDS IDENTIFIED

Because of the nature and age of the facilities, conditions and potential hazards will change periodically. Therefore, caution must be taken by all personnel entering the facility to ensure personal safety.

The facility is subject to periodic vermin intrusion. Animal feces should be avoided because it is a health hazard and may be radiologically contaminated. Spiders, bull snakes, and rattlesnakes are common throughout the area and have been encountered in other facilities in the past.

116-D REACTOR EXHAUST STACK

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105-DR REACTOR BUILDING

1.0 LOCATION

The 105-DR Reactor Building is located in the 100-D/DR Area.

2.0 PURPOSE/HISTORY

The 105-DR Reactor Building, which housed the nuclear production reactor and directly associated equipment used in reactor operations, is an inactive radioactive material production unit (deactivated production reactor and irradiated fuel storage basin).

3.0 DESCRIPTION/DIMENSIONS

The 105-DR Reactor Building is a light, non-airtight, industrial structure, 81.7 m by 57 m (268 ft by 187 ft), with a total area of 4,656 m² (50,120 ft²). It is constructed of reinforced concrete in the lower portions and concrete block in the upper portion. The reinforced concrete surrounds the reactor block, exhaust air, and gas-handling facilities. The concrete block is in the remaining building. The roof is constructed of reinforced concrete or laminated reinforced gypsum board roof tile, depending on the specific roof area in question. There is a 61-m (200-ft) reinforced concrete stack, which is 4.9 m (16 ft) in diameter at the base. A railroad spur that enters the building on the east side provides access for railroad cars to the irradiated fuel transfer facilities. This reactor contains an estimated 13,500 Ci of radionuclides and 94 tons of lead.

Reactor Block. The reactor block is located near the center of the building. When facing the reactor front face, the horizontal control rod penetrations are on the left side of the reactor block, and the safety rod penetrations are on the top of the reactor. Fuel discharge and storage areas are located adjacent to the rear face of the reactor block. Experimental test penetrations are on the right side. The reactor block consists of a graphite moderator stack encased in cast-iron thermal shielding, a biological shield consisting of alternating layers of masonite and steel on the four sides, and a 2.1-m (7-ft) -thick, heavy aggregate poured shield on top. The entire block rests on a massive concrete foundation. The block weighs approximately 9,145 metric tons (9,000 tons) and is 14 m high by 14 m wide by 12.2 m deep (46 ft high by 46 ft wide by 40 ft deep).

105-DR REACTOR BUILDING

3.0 DESCRIPTION/DIMENSIONS (Continued)

Storage Basin. The fuel storage basin served as an underwater collection, storage, and transfer facility for the irradiated fuel elements discharged from the reactor. It consists of a fuel element pickup area, storage area, and transfer area. Irradiated fuel elements were sorted and placed in storage containers in the pickup area, transported by monorail to the storage area, and held to allow decay of short-lived radionuclides prior to reprocessing. Following storage, the buckets of fuel elements were moved to the transfer area, the chemical processing facilities. A wash pad, which was used for equipment decontamination, and an underwater inspection facility are also in the storage basin area. The total area of the fuel storage basin, including the fuel element pickup and transfer areas, is approximately 929 m² (10,000 ft²). The basin is 6.7 m (22 ft) deep, has either a wooden slotted or steel grating floor, and contains 6.1 m (20 ft) of water during operating periods. The average thickness of the outside walls and bottom of the basin is 50.8 cm (20 in.) and 15.2 cm (6 in.), respectively.

4.0 REFERENCE

Photograph: 93070619-45CN

5.0 UTILITIES AND SAFETY SYSTEMS

Intrusion Alarm	Yes [x]	No []	Unknown []
Heat	Yes []	No [x]*	Unknown []
Ventilation	Yes []	No [x]	Unknown []
Air Conditioning	Yes [x]	No []	Unknown []
Electricity	Yes []	No [x]	Unknown []
Fire Detection	Yes []	No [x]	Unknown []
Fire Suppression	Yes []	No [x]	Unknown []
Compressed Air	Yes []	No [x]	Unknown []
Vacuum Air	Yes []	No [x]	Unknown []
Breathing Air	Yes []	No [x]	Unknown []
Water	Yes [x]	No []	Unknown []
Drain	Yes [x]	No []	Unknown []
Emergency Shower	Yes []	No [x]	Unknown []
Exclusion Fence	Yes [x]	No []	Unknown []
Air Sampling	Yes []	No [x]	Unknown []

*Portable electric heat only.

105-DR REACTOR BUILDING

6.0 BUILDING PHYSICAL STATUS

Interior Condition:	Fair
Exterior Condition:	Poor
Roof Condition:	Fair
Operational Equipment:	Poor
Radiological Products:	Activation Products
Chemical Products:	Asbestos, others to be determine during decommissioning

7.0 HAZARDS IDENTIFIED

Radiological Hazards

The 105-DR Reactor Building is a radiologically controlled area. Radioactive contamination is essentially all activation and corrosion products (beta-gamma emitters) from reactor operations. Routine entry and exit requirements are identified in the Radiation Work Permit (RWP), which is posted at the facility entrance. Nonroutine activities require that a special RWP be prepared. RWP requirements are mandatory.

The fan room section of this building was used as a sodium burn facility and is presently under the Fast Flux Test Facility landlord program. For entry, contact the landlord program.

Surface Contamination Areas

Stay clear of posted surface contamination areas in the 105-DR Reactor Building. Specific posted surface contamination areas include the fuel storage basins, the C elevator at the front face, the entire rear face area, and the stairs. The RWP for each of these areas defines anticontamination clothing requirements for access to these areas. All water on the floor should be avoided as it may be contaminated because it leaked through the building structure.

Industrial Hazards

The 105-DR Reactor Building is an inactive facility and is entered on a monthly surveillance basis. All areas of the building have precast gypsum panels that have severely deteriorated. The entire building is a hard-hat area. The front face work area, the control room, and office spaces are reasonably free of other hazards. Other areas of the facility are less frequently entered and additional caution and preplanning are warranted when entering these areas.

Fall Hazards

The absence of guardrails on the building's multilevel flat roofs presents a potential fall hazard.

105-DR REACTOR BUILDING

7.0 HAZARDS IDENTIFIED (Continued)

The roof structures are in fair condition. However, visual inspection of the roof surface will not always indicate structural integrity, and some cracked roofing panels have been noted. ALL ACCESS TO ROOF STRUCTURES REQUIRES SPECIFIC SAFETY EVALUATIONS AND WRITTEN AUTHORIZATION FROM THE FACILITY MANAGER.

Stairs, handrails, and guardrails around the facility stairs and subgrade structures are old and, in some cases, have deteriorated. Wooden stairs and handrails are the most suspect and should not be relied on to provide a structural boundary. In at least one case noted at the north side of the valve pit room, a piece of pipe is wired to existing handrails to cover an opening.

Slabs and hatch covers could have a potential of fall through because of their advanced age and deteriorated condition. Whenever possible, walk around instead of across such covers.

Wooden planking was used to cover the fuel storage basin. Special care and structural assessment are needed before relying on this material for support.

Oil can be encountered on the floor of the accumulator room, near the elevators, in the valve pit hallway, and in the front face corridor. Oil should be avoided and absorbed as it is discovered.

Confined Spaces

There are numerous confined spaces under concrete cover blocks, in accessible water basins, and in drains, manways, and valve pits around the building.

Some subsurface spaces are covered with other than their original covers. These areas present not only a fall-through hazard, but the covers may not fit well and holes can be found around the cover.

Numerous places in the building have had some floor subsidence. Because the exact cause of this is unknown, these areas generally should be avoided. Under no circumstance should any material or waste be stored or stockpiled in these areas.

Confined spaces shall only be entered after following the prescribed actions listed in *Industrial Safety Manual*, WHC-CM-4-3, Section W-13.

Energy Sources

This facility is powered by a single 480-volt electrical feed with dry-type stepdown transformers for lighting distribution. The switchgear is aged and must be operated with extra caution. Written authorization and work instructions are required for all 480-volt switchgear operations. All electrical lines should be considered to be energized until proven otherwise.

105-DR REACTOR BUILDING

7.0 HAZARDS IDENTIFIED (Continued)

There are missing conduit closures, light bulbs, and fixture covers on items that may contain energized wires, some of which may be bare. **DO NOT TOUCH ANY ELECTRICAL WIRING OR TRANSFER EQUIPMENT UNLESS SPECIFICALLY ADDRESSED IN AN ASSIGNED WORK PACKAGE.**

At transformer E2735, outside the building, two wires pass within 0.3 m (1 ft) of the chain link fence. Extreme care should be used in this area.

Extension cords have been used to supply portable heaters. These may be energized and may present an overload or fire hazard.

Openings in electrical and instrumentation cabinets may contain energized stabs and must be avoided until covered or removed.

There is old rigging material/equipment in the facility. None of this material/equipment shall be placed into service until certified for use and tagged accordingly.

Hygiene Hazards

Asbestos. Piping, electrical wire insulation, and ventilation components are insulated with asbestos-containing materials, and transite is used in certain structural components. Asbestos is normally maintained in a nonfriable condition. However, the asbestos-containing material is subject to deterioration, and friable asbestos may be encountered. Any cracks or holes in the transite may provide an avenue for this material to become friable and shall be avoided.

Animals and Insects. The facility is subject to periodic animal intrusion, most commonly by birds or mice although larger animals could be encountered. Animal feces should be avoided because it is a health hazard and may be radiologically contaminated. Spiders are common throughout the facility. Bats have been sighted in some retired reactor facilities and may be encountered in this facility. Bull snakes and rattlesnakes are in the area and have been encountered in other facilities in the past.

Chemicals. Recently, unknown chemicals and spray cans have been found in the building. These items have been or will be removed for proper disposal. This emphasizes the fact that the potential remains for discovering old containers in any surplus facility. If chemicals or containers are found, they must not be disturbed and the building administrator shall be notified.

Lead. Lead brick and sheeting were used for shielding purposes throughout the building. Some of this lead remains within the structure and should be avoided because of oxidation potential.

105-DR REACTOR BUILDING

116-DR REACTOR EXHAUST STACK**1.0 LOCATION**

The 116-DR Reactor Exhaust Stack is located in the 100-D/DR Area.

2.0 PURPOSE/HISTORY

The 116-DR Reactor Exhaust Stack discharged ventilation air 61 m (200 ft) above grade from the 105-DR Building. Exhaust air flowed through concrete ducts from the 105-DR Building directly out the exhaust stack. Following completion of the confinement project in the 1950's, the air was diverted through underground, reinforced concrete ducts to the 117-DR Filter Building. After flowing through the filters, the air went through belowgrade and abovegrade concrete ducts into the exhaust stack.

3.0 DESCRIPTION/DIMENSIONS

The stack is a monolithic, reinforced concrete structure 61 m (200 ft) above grade, 3.1 m (10 ft) below grade, and 4.9-m (16-ft) outside diameter at the base. In general, the wall thickness is 0.46 m (1.5 ft) at the base and 0.3 m (1 ft) at the top. An opening at the bottom, with a steel door cover, provides access to the interior of the stack. The stack is supported on a solid concrete base, which in turn is supported by a concrete, octagonal-shaped foundation. The octagonal base measures 5.6 m (18.5 ft) side-to-side, and is 3.5 m (11.5 ft) thick. The bottom octagonal foundation measures 8.2 m (27 ft) side-to-side and is 1.8 m (6 ft) thick.

4.0 REFERENCE

Photograph: 92080357-42CN

5.0 UTILITIES AND SAFETY SYSTEMS

Intrusion Alarm	Yes []	No [x]	Unknown []
Heat	Yes []	No [x]	Unknown []
Ventilation	Yes []	No [x]	Unknown []
Air Conditioning	Yes []	No [x]	Unknown []
Electricity	Yes []	No [x]	Unknown []
Fire Detection	Yes []	No [x]	Unknown []
Fire Suppression	Yes []	No [x]	Unknown []
Compressed Air	Yes []	No [x]	Unknown []
Vacuum Air	Yes []	No [x]	Unknown []
Breathing Air	Yes []	No [x]	Unknown []
Water	Yes []	No [x]	Unknown []
Drain	Yes []	No [x]	Unknown []
Emergency Shower	Yes []	No [x]	Unknown []
Exclusion Fence	Yes [x]	No []	Unknown []
Air Sampling	Yes []	No [x]	Unknown []

116-DR REACTOR EXHAUST STACK

6.0 BUILDING PHYSICAL STATUS

Interior Condition:	To be determined
Exterior Condition:	To be determined
Roof Condition:	To be determined
Operational Equipment:	To be determined
Radiological Products:	To be determined
Chemical Products:	To be determined

7.0 HAZARDS IDENTIFIED

Because of the nature and age of the facilities, conditions, and potential hazards will change periodically. Therefore, caution must be taken by all personnel entering the facility to ensure personal safety.

The facility is subject to periodic vermin intrusion. Animal feces should be avoided because it is a health hazard and may be radiologically contaminated. Spiders, bull snakes, and rattlesnakes are common throughout the area and have been encountered in other facilities in the past.

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116-DR REACTOR EXHAUST STACK

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117-DR EXHAUST AIR FILTER BUILDING

1.0 LOCATION

The 117-DR Exhaust Air Filter Building is located in the 100-D/DR Area.

2.0 PURPOSE/HISTORY

The 117-DR Building filtered ventilation air from the confinement zone of the 105-DR Reactor Building before its discharge to the atmosphere through the 105-DR Stack.

3.0 DESCRIPTION/DIMENSIONS

The building is a reinforced concrete structure, 18 m (59 ft) long, 11.9 m (39 ft) wide and 10.7 m (35 ft) high. It is almost completely below grade. The building is approximately 2.4 m (8 ft) above grade. The 117-DR Building housed the reactor building exhaust air filters and air flow control system. Reactor building exhaust gases (primarily ventilation gases) were directed to the exhaust filter building where the air passed through "absolute" (particulate) and "halogen" (activated charcoal) filters and was then discharged through the 116-DR Reactor Stack.

The facility contains two identical filter cells separated by a two-story operating gallery, which is almost entirely below grade. A berm was formed on the side walls of earth and gunite. Large steel hatch covers serve as the roof. The walls are constructed of reinforced concrete. A sump pump is located at the lowest point in the building. An in-line axial vane fan, used for ventilation in the work gallery during maintenance, is contained in a small concrete cell adjacent to the filter building. The ventilation ducts are approximately 1.5 m wide by 3.5 m high (5 ft wide by 11.5 ft high). The inlet and exhaust tunnels have large turning vanes to deflect air into or out of the filter cells. Building piping includes a minimum amount of small diameter pipes for service water, compressed air, and instrument lines.

A small amount of electrical wiring and switchgear was required for building lighting and electrical power service. Concrete covers are provided for each filter frame location. The interior surfaces of the buildings have been coated with polyvinyl to seal cracks and imperfections in the concrete and to facilitate decontamination.

4.0 REFERENCE

Photograph: 92080357-40CN

117-DR EXHAUST AIR FILTER BUILDING

5.0 UTILITIES AND SAFETY SYSTEMS

Intrusion Alarm	Yes	[]	No	[x]	Unknown	[]
Heat	Yes	[]	No	[x]	Unknown	[]
Ventilation	Yes	[]	No	[x]	Unknown	[]
Air Conditioning	Yes	[]	No	[x]	Unknown	[]
Electricity	Yes	[x]	No	[]	Unknown	[]
Fire Detection	Yes	[]	No	[x]	Unknown	[]
Fire Suppression	Yes	[]	No	[x]	Unknown	[]
Compressed Air	Yes	[]	No	[x]	Unknown	[]
Vacuum Air	Yes	[]	No	[x]	Unknown	[]
Breathing Air	Yes	[]	No	[x]	Unknown	[]
Water	Yes	[]	No	[]	Unknown	[x]
Drain	Yes	[]	No	[]	Unknown	[x]
Emergency Shower	Yes	[]	No	[x]	Unknown	[]
Exclusion Fence	Yes	[]	No	[x]*	Unknown	[]
Air Sampling	Yes	[]	No	[x]	Unknown	[]

*The 117-DR Building is no longer inside the exclusion fence. The exclusion fence was revised at the 105-DR Reactor Building to exclude the 117-DR Building. This was done to permit the sodium burn experiments to be performed without access to the exclusion area.

6.0 BUILDING PHYSICAL STATUS

Interior Condition:	Fair
Exterior Condition:	Poor
Roof Condition:	Poor
Operational Equipment:	Not applicable
Radiological Products:	To be determined
Chemical Products:	To be determined

7.0 HAZARDS IDENTIFIED

Because of the nature and age of the facilities, conditions and potential hazards will change periodically. Therefore, caution must be taken by all personnel entering the facility to ensure personal safety.

The facility is subject to periodic vermin intrusion. Animal feces should be avoided because it is a health hazard and may be radiologically contaminated. Spiders, bull snakes, and rattlesnakes are common throughout the area and have been encountered in other facilities in the past.

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117-DR EXHAUST AIR FILTER BUILDING

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2 of 5

119-DR EXHAUST AIR SAMPLE BUILDING**1.0 LOCATION**

The 119-DR Exhaust Air Sample Building is located in the 100-D/DR Area.

2.0 PURPOSE/HISTORY

The 119-DR Building housed most of the instrumentation for the exhaust air system. To monitor radioactivity, a sample stream of the exhaust air was routed through a continuous air monitoring system in the building.

3.0 DESCRIPTION/DIMENSIONS

The structure is a small prefabricated metal building, 4.6 m by 7.3 m (15 ft by 24 ft), placed on a concrete slab floor/foundation (on-grade). It is located over the ventilation ducts leading to the 117-DR Filter Building. The interior surfaces are painted wallboard.

4.0 REFERENCE

Photograph: 92080357-41CN

5.0 UTILITIES AND SAFETY SYSTEMS

Intrusion Alarm	Yes []	No [x]	Unknown []
Heat	Yes []	No [x]	Unknown []
Ventilation	Yes []	No [x]	Unknown []
Air Conditioning	Yes []	No [x]	Unknown []
Electricity	Yes [x]	No []	Unknown []
Fire Detection	Yes []	No [x]	Unknown []
Fire Suppression	Yes []	No [x]	Unknown []
Compressed Air	Yes []	No [x]	Unknown []
Vacuum Air	Yes []	No [x]	Unknown []
Breathing Air	Yes []	No [x]	Unknown []
Water	Yes []	No [x]	Unknown []
Drain	Yes [x]	No []	Unknown []
Emergency Shower	Yes []	No [x]	Unknown []
Exclusion Fence	Yes []	No [x]	Unknown []
Air Sampling	Yes []	No [x]	Unknown []

119-DR EXHAUST AIR SAMPLE BUILDING

6.0 BUILDING PHYSICAL STATUS

Interior Condition:	Fair
Exterior Condition:	Poor
Roof Condition:	Poor
Operational Equipment:	Not applicable
Radiological Products:	To be determined
Chemical Products:	To be determined

7.0 HAZARDS IDENTIFIED

As the result of specific building walkthroughs by senior safety and engineering personnel, the most significant hazards have been identified. However, because of the nature and age of the facilities, conditions and potential hazards will change periodically. Therefore, caution must be taken by all personnel entering the facility to ensure personal safety.

This small facility has many of the electrical problems identified for the 105-DR Building. During the initial walkthroughs, tumbleweeds and debris were observed in the building.

The facility is subject to periodic vermin intrusion. Animal feces should be avoided because it is a health hazard and may be radiologically contaminated. Spiders, bull snakes, and rattlesnakes are common throughout the area and have been encountered in other facilities in the past.

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119-DR EXHAUST AIR SAMPLE BUILDING

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1702-DR AREA BADGE HOUSE**1.0 LOCATION**

The 1702-DR Area Badge House is located in the 100-D/DR Area.

2.0 PURPOSE/HISTORY

The 1702-DR Area Badge House provided a sheltered security check point for entrance to the 105-DR exclusion area.

3.0 DESCRIPTION/DIMENSIONS

The 1702-DR Building is a one-story wooden framed structure, 6.1 m by 6.1 m by 3.7 m (20 ft by 20 ft by 12 ft), with a concrete floor and foundation. The asbestos shake siding, gable wooden roof is covered with roll-roofing. The building's total area is approximately 37.2 m² (400 ft²).

4.0 REFERENCE

Photograph: 92080357-36CN

5.0 UTILITIES AND SAFETY SYSTEMS

Intrusion Alarm	Yes []	No [x]	Unknown []
Heat	Yes []	No [x]	Unknown []
Ventilation	Yes []	No [x]	Unknown []
Air Conditioning	Yes []	No [x]	Unknown []
Electricity	Yes []	No [x]	Unknown []
Fire Detection	Yes []	No [x]	Unknown []
Fire Suppression	Yes []	No [x]	Unknown []
Compressed Air	Yes []	No [x]	Unknown []
Vacuum Air	Yes []	No [x]	Unknown []
Breathing Air	Yes []	No [x]	Unknown []
Water	Yes []	No [x]	Unknown []
Drain	Yes []	No [x]	Unknown []
Emergency Shower	Yes []	No [x]	Unknown []
Exclusion Fence	Yes [x]*	No []	Unknown []
Air Sampling	Yes []	No [x]	Unknown []

*Building is part of exclusion fence line.

6.0 BUILDING PHYSICAL STATUS

Interior Condition:	Fair
Exterior Condition:	Poor
Roof Condition:	Poor
Operational Equipment:	Not applicable
Radiological Products:	To be determined
Chemical Products:	To be determined

1702-DR AREA BADGE HOUSE

7.0 HAZARDS IDENTIFIED

As the result of specific building walkthroughs by senior safety and engineering personnel, the most significant hazards have been identified. However, because of the nature and age of the facilities, conditions and potential hazards will change periodically. Therefore, caution must be taken by all personnel entering the facility to ensure personal safety.

The building is in very poor condition, with transite shingles falling off the exterior and an unmarked confined space at the south side of the building.

The facility is subject to periodic vermin intrusion. Animal feces should be avoided because it is a health hazard and may be radiologically contaminated. Spiders, bull snakes, and rattlesnakes are common throughout the area and have been encountered in other facilities in the past.

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1702-DR AREA BADGE HOUSE

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105-F REACTOR BUILDING**1.0 LOCATION**

The 105-F Reactor Building is located in the 100-F Area.

2.0 PURPOSE/HISTORY

The 105-F Reactor Building provides housing for the nuclear reactor and directly associated equipment used in reactor operation.

3.0 DESCRIPTION/DIMENSIONS

The 105-F Reactor Building is similar to 105-B Reactor Building, with minor variations in layout and detail. Except for reinforced concrete portions, the building can be classified as a light, non-airtight, industrial structure. The L-shaped building's dimensions are 71.3 m by 55.2 m by 36.6 m (234 ft by 181 ft by 120 ft) and 34.1 m by 22.9 m by 4.6 m (112 ft by 75 ft by 15 ft). The building's total area is 4,993 m² (53,750 ft²). The building is constructed of reinforced concrete in the lower portion and concrete block or corrugated asbestos cement in the upper portion. The building's massive reinforced concrete walls are 0.9 m to 1.5 m (3 ft to 5 ft) thick around the reactor block at the lower levels provide additional radiation shielding. The roof is constructed of reinforced concrete or precast concrete roof tile, depending on the specific roof area in question. An extensive ventilation system provided ventilation for personnel comfort and contained the radioactive contamination through controlled pressure zone air flow.

Reactor Block. The reactor block is located near the center of the building. When facing the reactor front face, the horizontal control rod penetrations are on the left side of the reactor block, and the safety rod penetrations are adjacent to the rear face of the reactor block. Experimental test penetrations are on the right side. The reactor block consists of a graphite moderator stack encased in cast iron thermal shielding and a biological shield consisting of alternating layers of masonite and steel on the four sides and a 2.1-m (7-ft) -thick heavy aggregate poured shield on top. The entire block rests on a massive concrete foundation. The block weighs approximately 9,145 metric tons (9,000 tons) and is 14 m high by 14 m wide by 12.2 m deep (46 ft high by 46 ft wide by 40 ft deep).

Storage Basin. The fuel storage basin served as a collection, storage, and transfer facility for the irradiated fuel elements discharged from the reactor. Irradiated fuel elements were stacked in buckets in the pickup area, transported by monorail to the storage area, and held to allow decay of short-lived radionuclides prior to shipment to the 200 Area. Following storage, the buckets of fuel elements were moved to the transfer area, placed in lead-shielded casks, and moved into a railroad well car for transport to the chemical processing facilities. A wash pad, which was used for equipment decontamination, and an underwater inspection facility are also in the storage basin area. The total area of the fuel storage basin, including the fuel element pickup and transfer areas, is between 650 m² (7,000 ft²) and 929 m² (10,000 ft²). The basin is 6.7 m (22 ft) deep, has either a wooden slotted or steel grating floor, and contains 6.1 m (20 ft) of water during operating periods.

105-F REACTOR BUILDING

4.0 REFERENCE

Photograph: 93070619-6CN

5.0 UTILITIES AND SAFETY SYSTEMS

Intrusion Alarm	Yes ☒	No ☐	Unknown ☐
Heat	Yes ☐	No ☒ *	Unknown ☐
Ventilation	Yes ☐	No ☒	Unknown ☐
Air Conditioning	Yes ☐	No ☒	Unknown ☐
Electricity	Yes ☒	No ☐	Unknown ☐
Fire Detection	Yes ☐	No ☒	Unknown ☐
Fire Suppression	Yes ☐	No ☒	Unknown ☐
Compressed Air	Yes ☐	No ☒	Unknown ☐
Vacuum Air	Yes ☐	No ☒	Unknown ☐
Breathing Air	Yes ☐	No ☒	Unknown ☐
Water	Yes ☒	No ☐	Unknown ☐
Drain	Yes ☒	No ☐	Unknown ☐
Emergency Shower	Yes ☐	No ☒	Unknown ☐
Exclusion Fence	Yes ☒	No ☐	Unknown ☐
Air Sampling	Yes ☐	No ☒	Unknown ☐

*Portable electric heaters only.

6.0 BUILDING PHYSICAL STATUS

Interior Condition:	Fair
Exterior Condition:	Poor
Roof Condition:	Poor
Operational Equipment:	Not applicable
Radiological Products:	To be determined
Chemical Products:	To be determined

7.0 HAZARDS IDENTIFIED

Radiological Hazards

The 105-F Reactor Building is a radiologically controlled area. Radioactive contamination is essentially all activation and corrosion products (beta-gamma emitters) from reactor operations. Routine entry and exit requirements are identified in the Radiation Work Permit (RWP), which is posted at the facility entrance. Nonroutine activities require a special RWP be prepared. RWP requirements are mandatory.

105-F REACTOR BUILDING

7.0 HAZARDS IDENTIFIED (Continued)

Surface Contamination Areas

Individuals must stay clear of posted surface contamination areas in the 105-F Reactor Building. Specific posted surface contamination areas include the fuel storage basins, the C elevator at the front face, the entire rear face area, and the stairs. The RWP for each of these areas defines anticontamination clothing requirements for access to these areas.

Industrial Hazards

The 105-F Reactor Building is an inactive facility and is entered on a monthly surveillance basis. All areas of the building have precast gypsum panels that are severely deteriorated. The entire building is a hard-hat area. The front face work area, the control room, and office spaces are reasonably free of other hazards. Other areas of the facility are less frequently entered, thus additional caution and preplanning are warranted when entering these areas.

Fall Hazards

The absence of guardrails on the building's multilevel flat roofs presents a potential fall hazard.

Roof structures are in very poor condition. Visual inspection of the roof surface will not always indicate structural integrity, and numerous cracked roofing panels have been noted. ALL ACCESS TO ROOF STRUCTURES REQUIRES SPECIFIC SAFETY EVALUATIONS AND WRITTEN AUTHORIZATION FROM THE FACILITY MANAGER.

Stairs, handrails, and guardrails around the facility stairs and subgrade structures are old and, in some cases, have deteriorated. Wooden stairs and handrails are the most suspect and should not be relied on to provide a structural boundary. The stairs to the shower and change room near the valve pit are in particularly poor condition and should not be used.

Wooden planking was used to cover the fuel storage basin. Special care and structural assessment are needed before relying on this material for support.

Confined Spaces

There are numerous confined spaces under concrete cover blocks, in accessible water basins, and in drains, manways, and valve pits around the building. Confined spaces shall only be entered after following the prescribed actions listed in *Industrial Safety Manual*, WHC-CM-4-3, Section W-13.

105-F REACTOR BUILDING

7.0 HAZARDS IDENTIFIED (Continued)

Energy Sources

The facility is powered by dual feeds, a single 480-volt electrical feed with dry-type stepdown transformers for lighting distribution and a 220-volt electrical feed. The switchgear is aged and must be operated with extra caution. Written authorization and work instructions are required for all 480-volt switchgear operations. All electrical lines should be considered to be energized until proven otherwise. NOTE: AFTER APPROXIMATELY MARCH 1, 1993, A NEW LIGHTING DISTRIBUTION SYSTEM WILL BE OPERATIONAL IN THIS FACILITY.

There are missing conduit closures, light bulbs, and fixture covers on items that may contain energized wires, some of which may be bare. DO NOT TOUCH ANY ELECTRICAL WIRING OR TRANSFER EQUIPMENT UNLESS SPECIFICALLY ADDRESSED IN AN ASSIGNED WORK PACKAGE.

50 cords and double-insulated power cords have been used in the past to supply all the building lighting and some portable heaters. These may be energized and may present an overload or fire hazard.

Openings in electrical and instrumentation cabinets may contain energized stabs and must be avoided until covered or removed.

There is old rigging material/equipment in the facility. None of this material/equipment shall be placed into service until certified for use and tagged accordingly.

Hygiene Hazards

Asbestos. Piping, electrical wire insulation, and ventilation components are insulated with asbestos-containing materials, and transite is used in certain structural components. Normally, asbestos is maintained in a nonfriable condition. However, the asbestos-containing material is subject to deterioration, and friable asbestos may be encountered. Any cracks or holes in the transite siding may provide an avenue for this material to become friable and shall be avoided.

Old electrical wiring could contain friable asbestos and should be avoided even after the wires are de-energized. Many original conduits are being used for the new lighting system. These conduits are suspected of having asbestos contamination.

Animals and Insects. The facility is subject to periodic animal intrusion, most commonly by birds and mice although larger animals could be encountered. Animal feces should be avoided because it is a health hazard and may be radiologically contaminated. Spiders are common throughout the facility. Bats have been sighted in some retired reactor facilities and may be encountered in the facility. Bull snakes and rattlesnakes are in the area and have been encountered in this facility in the past.

105-F REACTOR BUILDING

7.0 HAZARDS IDENTIFIED (Continued)

Chemicals. Miscellaneous oil, grease, solvents, and spray cans have recently been found in the building. These items have been or will be removed for proper disposal. This emphasizes the fact that the potential remains for discovering old containers in any surplus facility. If chemicals or containers are found, they must not be disturbed and the building administrator shall be notified.

Lead. Lead brick and sheeting were used for shielding purposes throughout the building. Some of this lead remains within the structure and should be avoided because of oxidation potential.

105-F REACTOR BUILDING

108-F BIOLOGY LABORATORY BUILDING**1.0 LOCATIONS**

The 108-F Biology Laboratory Building is located in the 100-F Area.

2.0 PURPOSE/HISTORY

The 108-F Biology Laboratory Building was built in 1950 and provided office and laboratory space for the Hanford Laboratories Biology Laboratory.

3.0 DESCRIPTION/DIMENSIONS

This building consists of the 108-F Laboratory Building, which was part of the original area construction, and an annex, which was added in 1961. The original building is a rectangular four-story, steel framed and concrete block structure with concrete foundation and floors. The roof is made of concrete tile with a built-up tar and gravel surface. The total area is about 1,858 m² (20,000 ft²). The annex has a total area of about 1,022 m² (11,000 ft²). This three-story rectangular addition of block construction adjoins the older building. The complete facility contains 39 offices, 47 laboratories, a heavy source room, 18 rooms for handling small animals, and a 91.2-m² (982-ft²) biology library.

4.0 REFERENCE

Photograph: 93070619-8CN

5.0 UTILITIES AND SAFETY SYSTEMS

Intrusion Alarm	Yes []	No [x]	Unknown []
Heat	Yes [x]	No []	Unknown []
Ventilation	Yes []	No [x]	Unknown []
Air Conditioning	Yes [x]	No []	Unknown []
Electricity	Yes [x]	No []	Unknown []
Fire Detection	Yes []	No [x]	Unknown []
Fire Suppression	Yes []	No [x]	Unknown []
Compressed Air	Yes []	No [x]	Unknown []
Vacuum Air	Yes []	No [x]	Unknown []
Breathing Air	Yes []	No [x]	Unknown []
Water	Yes [x]	No []	Unknown []
Drain	Yes [x]	No []	Unknown []
Emergency Shower	Yes []	No [x]	Unknown []
Exclusion Fence	Yes [x]	No []	Unknown []
Air Sampling	Yes []	No [x]	Unknown []

108-F BIOLOGY LABORATORY BUILDING

6.0 BUILDING PHYSICAL STATUS

Interior Condition:	Fair
Exterior Condition:	Poor
Roof Condition:	Poor
Operational Equipment:	Not applicable
Radiological Products:	To be determined
Chemical Products:	To be determined

7.0 HAZARDS IDENTIFIED

Radiological Hazards

The 108-F Building is a radiologically controlled area. There is minimal radioactive contamination in the building. Routine entry and exit requirements are identified in the Radiation Work Permit (RWP), which is posted at the facility entrance. Nonroutine activities require that a special RWP be prepared. RWP requirements are mandatory.

Industrial Hazards

The 108-F Building is an inactive facility and is infrequently entered. Extreme caution is warranted when entering this building.

Fall Hazards

The absence of guardrails on the building's flat roof presents a potential fall hazard. The roof structure is in good condition, except for the east annex where precast concrete roof panels are in extremely poor condition. Visual inspection of the roof surface may not always indicate structural integrity. ALL ACCESS TO ROOF STRUCTURES REQUIRES SPECIFIC SAFETY EVALUATIONS AND WRITTEN AUTHORIZATION FROM THE FACILITY MANAGER.

Energy Sources

Because the facility has no electrical power, portable lighting must be used when entering the building. Extreme caution is required because of the low lighting level available from portable lighting.

Hygiene Hazards

Asbestos. Asbestos-containing material is present, and friable asbestos can be expected to be encountered. Transite is used in certain interior structural components.

Animals and Insects. The facility is subject to periodic animal intrusion, most commonly by birds or mice although larger animals could be encountered. Animal feces should be avoided because it is a health hazard and may be radiologically contaminated. Spiders are common throughout the facility. Bats have been sighted in some retired reactor facilities and may be encountered in the facility. Bull snakes and rattlesnakes are in the area and have been encountered in other facilities in the past.

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108-F BIOLOGY LABORATORY BUILDING

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1701-FA GATE HOUSE**1.0 LOCATION**

The 1701-FA Gate House is located in the 100-F Area.

2.0 PURPOSE/HISTORY

The 1701-FA Gate House served as an area badge house and security patrol station.

3.0 DESCRIPTION/DIMENSIONS

This single-story, poured concrete building, 6.1 m by 9.8 m (20 ft by 32 ft) with a total area of 59.5 m² (640 ft²), has concrete floors and a flat concrete roof with a tar and gravel surface. This building housed sanitary services and lunchrooms.

4.0 REFERENCE

Photograph: 92080357-46N

5.0 UTILITIES AND SAFETY SYSTEMS

Intrusion Alarm	Yes []	No [x]	Unknown []
Heat	Yes []	No [x]	Unknown []
Ventilation	Yes []	No [x]	Unknown []
Air Conditioning	Yes []	No [x]	Unknown []
Electricity	Yes [x]	No []	Unknown []
Fire Detection	Yes []	No [x]	Unknown []
Fire Suppression	Yes []	No [x]	Unknown []
Compressed Air	Yes []	No [x]	Unknown []
Vacuum Air	Yes []	No [x]	Unknown []
Breathing Air	Yes []	No [x]	Unknown []
Water	Yes []	No [x]	Unknown []
Drain	Yes [x]	No []	Unknown []
Emergency Shower	Yes []	No [x]	Unknown []
Exclusion Fence	Yes []	No [x]	Unknown []
Air Sampling	Yes []	No [x]	Unknown []

1701-FA GATE HOUSE

6.0 BUILDING PHYSICAL STATUS

Interior Condition:	Fair
Exterior Condition:	Poor
Roof Condition:	Poor
Operational Equipment:	Not Applicable
Radiological Products:	To be determined
Chemical Products:	To be determined

7.0 HAZARDS IDENTIFIED

This building is isolated and is not to be entered unless a specific safety appraisal is performed prior to entry.

Because of the nature and age of the facilities, conditions and potential hazards will change periodically. Therefore, caution must be taken by all personnel entering the facility to ensure personal safety.

The facility is subject to periodic vermin intrusion. Animal feces should be avoided because it is a health hazard and may be radiologically contaminated. Spiders, bull snakes, and rattlesnakes are common throughout the area and have been encountered in other facilities in the past.

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1701-FA GATE HOUSE

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105-H REACTOR BUILDING

1.0 LOCATION

The 105-H Reactor Building is located in the 100-H Area.

2.0 PURPOSE/HISTORY

The 105-H Reactor Building provided housing for the nuclear reactor and directly associated equipment used in reactor operations.

3.0 DESCRIPTION/DIMENSIONS

Even though the 105-H Reactor Building is a second generation Hanford Site production reactor, it is similar to the 105-B Reactor Building with variations in layout and detail. The dimensions are 110.6 m by 60.4 m (363 ft by 198 ft). Except for reinforced concrete portions, the building can be classified as a light, non-airtight industrial structure. The building is constructed of reinforced concrete in the lower portion and concrete block or corrugated asbestos cement in the upper portion. The building's massive (0.9-m to 1.5-m [3-ft to 5-ft]-thick) reinforced concrete walls around the reactor block at the lower levels provide additional radiation shielding. The roof is constructed of reinforced laminated gypsum board; over the storage area, it is precast concrete roof tile. An extensive ventilation system provided ventilation for personnel comfort and contained the radioactive contamination in established zones through controlled pressure zone air flow. The gas recirculating facility is part of the 105-H Reactor Building.

Reactor Block. The reactor block is located near the center of the building. When facing the reactor front face, the horizontal control rod penetrations are on the left side of the reactor block, and the safety rod penetrations are on the top of the reactor. Fuel discharge and storage areas are located adjacent to the rear face of the reactor block. Experimental test penetrations are on the right side. The reactor block consists of a graphite moderator stack encased in cast iron thermal shielding and a biological shield consisting of alternating layers of masonite and steel or concrete. The entire block rests on a massive concrete foundation. The block weighs approximately 9.145 metric tons (9,000 tons) and is 14 m 14 m wide by 12.2 m deep (46 ft high by 46 ft wide by 40 ft deep).

105-H REACTOR BUILDING

3.0 DESCRIPTION/DIMENSIONS (Continued)

Storage Basin. The fuel storage basin served as a collection, storage, and transfer facility for the irradiated fuel elements discharged from the reactor. It consists of a fuel element pickup area, the storage area, and the transfer area. Irradiated fuel elements were stacked in buckets in the pickup area, transported by monorail to the storage area, and held to allow decay of short-lived radionuclides prior to reprocessing. Following storage, the buckets of fuel elements were moved to the transfer area, placed in lead-shielded casks, and moved into a railroad well car for transport to the chemical processing facilities. A wash pad, which was used for equipment decontamination, and an underwater inspection facility are also in the storage basin area. The basin is 6.7 m (22 ft) deep, has either a wooden slotted or steel grating floor, and contained 6.1 m (20 ft) of water during operating periods. The average thickness of the outside walls and bottom of the basin is 50.8 cm (20 in.) and 15.2 m (6 in.), respectively.

4.0 REFERENCE

Photograph: 93070619-24CN

5.0 UTILITIES AND SAFETY SYSTEMS

Intrusion Alarm	Yes ☒	No ☐	Unknown ☐
Heat	Yes ☐	No ☒	Unknown ☐
Ventilation	Yes ☐	No ☒	Unknown ☐
Air Conditioning	Yes ☐	No ☒	Unknown ☐
Electricity	Yes ☒	No ☐	Unknown ☐
Fire Detection	Yes ☐	No ☒	Unknown ☐
Fire Suppression	Yes ☐	No ☒	Unknown ☐
Compressed Air	Yes ☐	No ☒	Unknown ☐
Vacuum Air	Yes ☐	No ☒	Unknown ☐
Breathing Air	Yes ☐	No ☒	Unknown ☐
Water	Yes ☐	No ☒	Unknown ☐
Drain	Yes ☐	No ☒	Unknown ☐
Emergency Shower	Yes ☐	No ☒	Unknown ☐
Exclusion Fence	Yes ☒	No ☐	Unknown ☐
Air Sampling	Yes ☐	No ☒	Unknown ☐

105-H REACTOR BUILDING

6.0 BUILDING PHYSICAL STATUS

Interior Condition:	Poor
Exterior Condition:	Poor
Roof Condition:	Poor
Operational Equipment:	Poor
Radiological Products:	Activation Products
Chemical Products:	Asbestos, others to be determined during decommissioning

7.0 HAZARDS IDENTIFIED

Radiological Hazards

The 105-H Reactor Building is a radiologically controlled area. Radioactive contamination is essentially all activation and corrosion products (beta-gamma emitters) from reactor operations. Routine entry and exit requirements are identified in the Radiation Work Permit (RWP), which is posted at the facility entrance. Nonroutine activities require that a special RWP be prepared. RWP requirements are mandatory.

Surface Contamination

Personnel must stay clear of posted surface contamination areas in the 105-H Reactor Building. Specific posted surface contamination areas include the fuel storage basins, the C elevator at the front face, the entire rear face area, the stairs, and the front face work area storage room. The RWP for each of these areas defines anti-contamination clothing requirements for access to these areas. The water on the floor should be avoided because it may have become contaminated as it leaked through the building structure.

Industrial Hazards

The 105-H Reactor Building is an inactive facility and is entered on a monthly surveillance basis. All areas of the building have precast gypsum panels that have severely deteriorated. The entire building is a hard-hat area. The front face work area, the control room, and office spaces are reasonably free of other hazards. Other areas of the facility are less frequently entered; additional caution and preplanning are warranted when entering these areas.

Fall Hazards

The absence of guardrails on the building's multilevel flat roof presents a potential fall hazard.

The building's roof structures are in poor condition. In addition, visual inspection of the roof surfaces will not always indicate structural integrity, and some cracked roofing panels have been noted. ALL ACCESS TO ROOF STRUCTURES REQUIRES SPECIFIC SAFETY EVALUATIONS AND WRITTEN AUTHORIZATION FROM THE FACILITY MANAGER.

105-H REACTOR BUILDING

7.0 HAZARDS IDENTIFIED (Continued)

Stairs, handrails, and guardrails around the facility stairs and subgrade structures are old and, in some cases, have deteriorated. Wooden stairs and handrails are the most suspect and should not be relied on to provide a structural boundary.

Wooden planking was used to cover the fuel storage basin. Special care and structural assessment are needed before relying on this material for support.

Confined Spaces

There are numerous unmarked confined spaces under concrete cover blocks, in accessible water basins, and in drains, manways, and valve pits around the building.

Not all subsurface areas are covered with their original covers. This brings into question not only the adequacy of the cover's strength (fall through) but how fully the opening is secured (holes around the new cover). Walking on these areas should be avoided.

Confined spaces shall only be entered after following the prescribed actions listed in *Industrial Safety Manual*, WHC-CM-4-3, Section W-13.

Energy Sources

The facility is powered by a single 480-volt electrical feed with dry-type stepdown transformers for lighting distribution. The switchgear is aged and must be operated with extra caution. Written authorization and work instructions are required for all 480-volt switchgear operations. All electrical lines should be considered to be energized until proven otherwise.

There are missing conduit closures, light bulbs, and fixture covers on items that may contain energized wires, some of which may be bare. DO NOT TOUCH ANY ELECTRICAL WIRING OR TRANSFER EQUIPMENT UNLESS SPECIFICALLY ADDRESSED IN AN ASSIGNED WORK PACKAGE.

In the past, extension cords have been used to supply portable heaters. These may be energized and present an overload or fire hazard.

Openings in electrical and instrumentation cabinets may contain energized stabs and must be avoided until covered or removed.

There is old rigging material/equipment in and around the facility. None of this material/equipment shall be placed into service until certified for use and tagged accordingly.

105-H REACTOR BUILDING

7.0 HAZARDS IDENTIFIED (Continued)

Hygiene Hazards

Asbestos. Piping, electrical wire insulation, and ventilation components are insulated with asbestos-containing materials, and transite is used in certain structural components. Normally, asbestos is maintained in a nonfriable condition; however, the asbestos-containing material is subject to deterioration, and friable asbestos may be encountered. Any cracks or holes in the transite siding may provide an avenue for this material to become friable and shall be avoided.

Animals and Insects. The facility is subject to periodic animal intrusion, most commonly by birds or mice although larger animals could be encountered. Animal feces should be avoided because it is a health hazard and may be radiologically contaminated. Spiders are common throughout the facility. Bats have been sighted in some retired reactor facilities and may be encountered in the facility. Bull snakes and rattlesnakes are in the area and have been encountered in other facilities in the past.

Chemicals. Unused oil, grease, and some spray cans have recently been found in the building. These items have been or will be removed for proper disposal. This emphasizes the fact that the potential remains for discovering old containers in any surplus facility. If chemicals or containers are found, they must not be disturbed and the building administrator shall be notified.

Lead. Lead brick and sheeting were used for shielding purposes throughout the building. Some of this lead remains within the structure and should be avoided because of oxidation potential.

105-H REACTOR BUILDING

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1713-H WAREHOUSE**1.0 LOCATION**

The 1713-H Warehouse is located in the 100-H Area.

2.0 PURPOSE/HISTORY

The 1713-H Warehouse provides miscellaneous storage space.

3.0 DESCRIPTION/DIMENSIONS

The 1713-H Warehouse, an "L" shaped, single-story, steel-framed structure with corrugated transite siding, has been partitioned into three areas for storage space. The building's dimensions are 47.5 m by 18.9 m by 18.3 m (156 ft by 62 ft by 60 ft). The total area of the warehouse is approximately 1,208 m² (13,000 ft²). The foundation and floor are constructed of concrete. The roof is built-up tar and gravel surfacing over flat prefabricated concrete tile. There is a 1.2-m (4-ft) -high concrete unloading platform on one side of the building.

4.0 REFERENCE

Photograph: 93070619-28CN

5.0 UTILITIES AND SAFETY SYSTEMS

Intrusion Alarm	Yes []	No [x]	Unknown []
Heat	Yes []	No [x]	Unknown []
Ventilation	Yes []	No [x]	Unknown []
Air Conditioning	Yes []	No [x]	Unknown []
Electricity	Yes [x]	No []	Unknown []
Fire Detection	Yes []	No [x]	Unknown []
Fire Suppression	Yes []	No [x]	Unknown []
Compressed Air	Yes []	No [x]	Unknown []
Vacuum Air	Yes []	No [x]	Unknown []
Breathing Air	Yes []	No [x]	Unknown []
Water	Yes []	No [x]	Unknown []
Drain	Yes []	No [x]	Unknown []
Emergency Shower	Yes []	No [x]	Unknown []
Exclusion Fence	Yes []	No [x]	Unknown []
Air Sampling	Yes []	No [x]	Unknown []

1713-H WAREHOUSE

6.0 BUILDING PHYSICAL STATUS

Interior Condition:	Fair
Exterior Condition:	Poor
Roof Condition:	Poor
Operational Equipment:	Not applicable
Radiological Products:	To be determined
Chemical Products:	To be determined

7.0 HAZARDS IDENTIFIED

As the result of specific building walkthroughs by senior safety and engineering personnel, the most significant safety hazards have been identified. However, because of the nature and age of the facilities, conditions and potential hazards will change periodically. Therefore, caution must be taken by all personnel entering the facility to ensure personal safety.

This facility, while still in use to store Environmental Restorations Operations equipment, is prone to many of the same electrical problems noted for the 105-H Reactor Building. In addition, broken windows have been noted, producing not only glass on the floor but jagged edges at the window and a pathway for bird intrusion.

In addition, the facility is subject to periodic vermin intrusion. Animal feces should be avoided because it is a health hazard and may be radiologically contaminated. Spiders, bull snakes, and rattlesnakes are common throughout the area and have been encountered in other facilities in the past.

1713-H WAREHOUSE

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1720-HA ARSENAL**1.0 LOCATION**

The 1720-HA Arsenal is located in the 100-H Area.

2.0 PURPOSE/HISTORY

The 1720-HA Arsenal was used to store explosives. It was also used as a central storage for ammunition by Security Patrol and most recently was used for storing explosives for demolition work.

3.0 DESCRIPTION/DIMENSIONS

The 1702-HA Arsenal is a 1.8 m by 2.4 m (6 ft by 8 ft) concrete structure, that was used to house explosives for decommissioning projects. It is the old arsenal vault left when the patrol building was destroyed. This is the only explosive storage building on the Hanford Site.

4.0 REFERENCE

Photograph: 93070619-36CN

5.0 UTILITIES AND SAFETY SYSTEMS

Intrusion Alarm	Yes []	No [x]	Unknown []
Heat	Yes []	No [x]	Unknown []
Ventilation	Yes []	No [x]	Unknown []
Air Conditioning	Yes []	No [x]	Unknown []
Electricity	Yes []	No [x]	Unknown []
Fire Detection	Yes []	No [x]	Unknown []
Fire Suppression	Yes []	No [x]	Unknown []
Compressed Air	Yes []	No [x]	Unknown []
Vacuum Air	Yes []	No [x]	Unknown []
Breathing Air	Yes []	No [x]	Unknown []
Water	Yes []	No [x]	Unknown []
Drain	Yes []	No [x]	Unknown []
Emergency Shower	Yes []	No [x]	Unknown []
Exclusion Fence	Yes []	No [x]	Unknown []
Air Sampling	Yes []	No [x]	Unknown []

6.0 BUILDING PHYSICAL STATUS

Interior Condition:	Fair
Exterior Condition:	Poor
Roof Condition:	Poor
Operational Equipment:	Not applicable
Radiological Products:	To be determined
Chemical Products:	To be determined

1720-HA ARSENAL

7.0 HAZARDS IDENTIFIED

This building is isolated and should not be entered unless a specific safety appraisal is performed prior to entry.

Because of the nature and age of the facilities, conditions and potential hazards will change periodically. Therefore, caution must be taken by all personnel entering the facility to ensure personal safety.

In addition, the facility is subject to periodic vermin intrusion. Animal feces should be avoided because it is a health hazard and may be radiologically contaminated. Spiders, bull snakes, and rattlesnakes are common throughout the area and have been encountered in other facilities in the past.

1720-HA ARSENAL

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167-K CROSSTIE TUNNEL BUILDING**1.0 LOCATION**

The 167-K Crosstie Tunnel Building is located in the 100-K Area.

2.0 PURPOSE/HISTORY

The 167-K Crosstie Tunnel Building is used as the midway entry and ventilation shaft for the crosstie tunnel that connected the 190/165 Buildings in the KE and KW Areas. The tunnel was used as a conduit for the various backup utility services in the 100-K Area.

3.0 DESCRIPTION/DIMENSIONS

The 167-K Crosstie Tunnel Building is a concrete and steel structure 3 m by 4.6 m (10 ft by 15 ft). The walls of the structure contain large louvered openings.

4.0 REFERENCE

Photograph: 92080357-51CN

5.0 UTILITIES AND SAFETY SYSTEMS

Intrusion Alarm	Yes []	No [x]	Unknown []
Heat	Yes []	No [x]	Unknown []
Ventilation	Yes []	No [x]	Unknown []
Air Conditioning	Yes []	No [x]	Unknown []
Electricity	Yes []	No [x]	Unknown []
Fire Detection	Yes []	No [x]	Unknown []
Fire Suppression	Yes []	No [x]	Unknown []
Compressed Air	Yes []	No [x]	Unknown []
Vacuum Air	Yes []	No [x]	Unknown []
Breathing Air	Yes []	No [x]	Unknown []
Water	Yes []	No [x]	Unknown []
Drain	Yes []	No [x]	Unknown []
Emergency Shower	Yes []	No [x]	Unknown []
Exclusion Fence	Yes [x]*	No []	Unknown []
Air Sampling	Yes []	No [x]	Unknown []

*Located inside 1717-K fence.

167-K CROSSTIE TUNNEL BUILDING

6.0 BUILDING PHYSICAL STATUS

Interior Condition:	Fair
Exterior Condition:	Poor
Roof Condition:	Poor
Operational Equipment:	Not applicable
Radiological Products:	To be determined
Chemical Products:	To be determined

7.0 HAZARDS IDENTIFIED

This building is isolated and should not be entered unless a specific safety appraisal is performed prior to entry.

Because of the nature and age of the facilities, conditions and potential hazards will change periodically. Therefore, caution must be taken by all personnel entering the facility to ensure personal safety.

The facility is subject to periodic vermin intrusion. Animal feces should be avoided because it is a health hazard and may be radiologically contaminated. Spiders, bull snakes, and rattlesnakes are common throughout the area and have been encountered in other facilities in the past.

167-K CROSSTIE TUNNEL BUILDING

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182-K EMERGENCY WATER RESERVOIR AND PUMPHOUSE**1.0 LOCATION**

The 182-K Emergency Water Reservoir and Pumphouse is located in the 100-K Area.

2.0 PURPOSE/HISTORY

The 182-K Emergency Water Reservoir and Pumphouse housed three 1500-hp diesel engine driven pumps and associated equipment for emergency reactor cooling. Water could be pumped from either the KE or KW clearwells to either the KE or KW Reactor for emergency cooling.

3.0 DESCRIPTION/DIMENSIONS

The 182-K Emergency Water Reservoir and Pumphouse is a steel-framed structure with concrete foundation and floors, transite walls, and a roof of insulated steel decking with built-up tar and gravel surfacing. The total area is approximately 242.5 m² (2,610 ft²). Two underground storage tanks provided diesel oil for the engines. The pump discharged into a common header, which connected to the primary cooling system supply line in the 105 Buildings.

4.0 REFERENCE

Photograph: 93070619-83CN

5.0 UTILITIES AND SAFETY SYSTEMS

Intrusion Alarm	Yes []	No [x]	Unknown []
Heat	Yes []	No [x]	Unknown []
Ventilation	Yes []	No [x]	Unknown []
Air Conditioning	Yes []	No [x]	Unknown []
Electricity	Yes [x]	No []	Unknown []
Fire Detection	Yes []	No [x]	Unknown []
Fire Suppression	Yes []	No [x]	Unknown []
Compressed Air	Yes []	No [x]	Unknown []
Vacuum Air	Yes []	No [x]	Unknown []
Breathing Air	Yes []	No [x]	Unknown []
Water	Yes []	No [x]	Unknown []
Drain	Yes []	No [x]	Unknown []
Emergency Shower	Yes []	No [x]	Unknown []
Exclusion Fence	Yes [x]	No []	Unknown []
Air Sampling	Yes []	No [x]	Unknown []

182-K EMERGENCY WATER RESERVOIR AND PUMPHOUSE

6.0 BUILDING PHYSICAL STATUS

Interior Condition:	Fair
Exterior Condition:	Poor
Roof Condition:	Poor
Operational Equipment:	Not applicable
Radiological Products:	To be determined
Chemical Products:	To be determined

7.0 HAZARDS IDENTIFIED

This building is isolated and not to be entered unless a specific safety appraisal is performed prior to entry.

Because of the nature and age of the facilities, conditions and potential hazards will change periodically. Therefore, caution must be taken by all personnel entering the facility to ensure personal safety.

The facility is subject to periodic vermin intrusion. Animal feces should be avoided because it is a health hazard and may be radiologically contaminated. Spiders, bull snakes, and rattlesnakes are common throughout the area and have been encountered in other facilities in the past.

182-K EMERGENCY WATER RESERVOIR AND PUMPHOUSE

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105-KE REACTOR BUILDING

1.0 LOCATION

The 105-KE Reactor Building is located in the 100-K Area at the east end of the 105-KE/KW exclusion area fence.

2.0 PURPOSE/HISTORY

This facility was a third generation designed plutonium production reactor. The reactor is larger in size than the six older reactors and had about twice the production capacity. An expanded special irradiations test loop and corrosion study facility was incorporated in the design of the 105-KW Reactor. This facility is connected to the 1706-KE and KER operations.

3.0 DESCRIPTION/DIMENSIONS

The 105-KE Reactor Building is a concrete and structural steel multi-story structure with reinforced concrete or transite siding and a precast reinforced concrete or insulating concrete roof with built-up asphalt and gravel surfacing. The dimensions are 83.8 m by 64.9 m by 36.6 m (275 ft by 213 ft by 120 ft); the total area is 5,451 m² (58,675 ft²). The 105-KE Reactor Building contains the reactor, control room, offices, conference room, lunchroom, change room, spent fuel storage areas, ventilation systems, and certain test facilities. The building is zoned to control the airflow from office and service areas to potentially contaminated zones from which it is exhausted through a high efficiency filter system.

The unit consists of (1) a reactor block, made up of the graphite moderator stack, biological and thermal shields, process tubes, and the safety and control systems; and (2) contaminated portions of the reactor building. The unit contains 58,000 Ci of radionuclides, 170 metric tons (167 tons) of lead, and 707.9 m³ (25,000 ft³) of asbestos.

Reactor Block. The reactor block is located near the center of the building. When facing the reactor front face, the horizontal control rod penetrations are on the left side of the reactor block and the safety rod penetrations are on the top of the reactor. Fuel discharge and storage areas are located adjacent to the rear face of the reactor block. Experimental test penetrations are on the right side. The reactor block consists of a graphite moderator stack encased in cast iron thermal shielding and a biological shield consisting of high density aggregate concrete. The entire block rests on a massive concrete foundation. The block weighs approximately 9,145 metric tons (9,000 tons) and is 14 m high by 14 m wide by 12.2 m deep (46 ft high by 46 ft wide by 40 ft deep).

Storage Basin. The fuel storage basin served as a collection, storage, and transfer facility for the irradiated fuel elements discharged from the reactor. It consists of a fuel element pickup area, the storage area, and the transfer area. Irradiated fuel elements were stacked in buckets in the pickup area, transported by monorail to the storage area, and held to allow decay of short-lived radionuclides prior to reprocessing.

105-KE REACTOR BUILDING

3.0 DESCRIPTION/DIMENSIONS (Continued)

Following storage, the buckets of fuel elements were moved to the transfer area, placed in lead-shielded casks, and moved into a railroad well for transport to the chemical processing facilities. A wash pad, which was used for equipment decontamination, and an underwater inspection facility are also in the storage basin area. The basin is 6.7 m (22 ft) deep, has a slotted steel grating floor suspended from the ceiling, and contained 6.1 m (20 ft) of water during operating periods. The average thickness of the outside walls and bottom of the basin is 50.8 cm (20 in.) and 15.2 cm (6 in.) respectively. An asphalt membrane was installed under the basin floor and sloped out a collection header, which was monitored for early detection of basin water leaks and for diverting leakage to an approved drainage site.

4.0 REFERENCE

Photograph: 93070619-85CN

5.0 UTILITIES AND SAFETY SYSTEMS

Intrusion Alarm	Yes ☒	No ☐	Unknown ☐
Heat	Yes ☒	No ☐	Unknown ☐
Ventilation	Yes ☒	No ☐	Unknown ☐
Air Conditioning	Yes ☒	No ☐	Unknown ☐
Electricity	Yes ☒	No ☐	Unknown ☐
Fire Detection	Yes ☒	No ☐	Unknown ☐
Fire Suppression	Yes ☒	No ☐	Unknown ☐
Compressed Air	Yes ☒	No ☐	Unknown ☐
Vacuum Air	Yes ☐	No ☒	Unknown ☐
Breathing Air	Yes ☐	No ☒	Unknown ☐
Water	Yes ☒	No ☐	Unknown ☐
Drain	Yes ☒	No ☐	Unknown ☐
Emergency Shower	Yes ☒	No ☐	Unknown ☐
Exclusion Fence	Yes ☒	No ☐	Unknown ☐
Air Sampling	Yes ☒	No ☐	Unknown ☐

6.0 BUILDING PHYSICAL STATUS

Interior Condition:	Good
Exterior Condition:	Fair
Roof Condition:	Fair
Operational Equipment:	Fair
Radiological Products:	Activation products
Chemical Products:	Asbestos, others to be determined during decommissioning

105-KE REACTOR BUILDING

7.0 HAZARDS IDENTIFIED

Radiological Hazards

The 105-KE Reactor Building is a radiologically controlled area. Radioactive contamination is essentially all activation and corrosion products (beta-gamma emitters) from reactor operations. Routine entry and exit requirements are identified in the Radiation Work Permit (RWP), which is posted at the facility entrance. Nonroutine activities require that a special RWP be prepared. RWP requirements are mandatory.

Surface Contamination

Stay clear of posted surface contamination areas in the 105-KE Reactor Building. Specific posted surface contamination include the fuel storage basins, the C elevator at the front face, the front face work area, the entire rear face area, the reactor's top, the rear front face tool room and entry, and the valve pit area. Because radon presents a problem with non-cotton clothing, which attracts the radon, it will be detected during full-body scans required before exiting the K Area. The RWP defines anti-contamination clothing requirements for access to these areas.

Because of the almost routine use of this facility by personnel involved with fuel storage in the 105-KE Basin, the radiological condition of the facility changes frequently and, at times, without the knowledge of the Environmental Restoration Operations (ERO) building administrator. Extreme care should be used when working around equipment stored in these areas.

Industrial Hazards

The 105-KE Reactor Building is an inactive facility and is entered on a monthly surveillance basis by ERO personnel. All areas of the building have precast gypsum panels that have severely deteriorated. The entire building is a hard-hat area. The front face work area, the control room, and office spaces are, or have been used for storage. When work is necessary in these areas, it is important to use extreme care and attention to the types of materials stored. Other areas of the facility are less frequently entered; additional caution and preplanning are warranted when entering these areas.

Fall Hazards

The absence of guardrails on the building's multilevel flat roofs presents a potential fall hazard.

Roof structures, which are comprised of transite panels on 2.4-m (8-ft) centers for the main load-bearing structural member, are in poor condition. However, visual inspection of the roof surface will not always indicate structural integrity, and some cracked roofing panels have been noted. ALL ACCESS TO ROOF STRUCTURES REQUIRES SPECIFIC SAFETY EVALUATIONS AND WRITTEN AUTHORIZATION FROM THE FACILITY MANAGER.

105-KE REACTOR BUILDING

7.0 HAZARDS IDENTIFIED (Continued)

Stairs, handrails, and guardrails around the facility stairs and subgrade structures are old and, in some cases, deteriorated. Wooden stairs and handrails are the most suspect and should not be relied on to provide a structural support.

The C elevator is not pinned in position. It is located approximately 3 m (10 ft) off the ground, and no entrance is permitted until it is properly pinned in position.

Confined Spaces

There are numerous confined spaces under concrete cover blocks, in accessible water basins, and in drains, manways, and valve pits around the building. Any volume below grade may constitute a confined space. Entry into these areas requires special written permission or a permit. Confined spaces shall be entered after following the prescribed actions listed in the *Industrial Safety Manual*, WHC-CM-4-3, Section W-13.

Energy Sources

The facility is powered by multiple 480-VAC feeders from the 165-KE Building, with dry-type stepdown transformers for lighting distribution. The switchgear is aged and must be operated with extra caution. Written authorization and work instructions are required for all 480-volt (or greater) switchgear operations. All electrical lines should be considered to be energized until proven otherwise.

There are missing conduit closures, light bulbs, and fixture covers on items that may contain energized wires, some of which may be bare. **DO NOT TOUCH ANY ELECTRICAL WIRING OR TRANSFER EQUIPMENT UNLESS SPECIFICALLY ADDRESSED IN AN ASSIGNED WORK PACKAGE.**

Openings in electrical and instrumentation cabinets may contain energized stabs and must be avoided until covered or removed.

There is old rigging material/equipment in the facility. None of this material/equipment shall be placed into service until it is certified for use and tagged accordingly.

Hygiene Hazards

Asbestos. Piping, electrical wire insulation, and ventilation components are insulated with asbestos-containing materials, and transite is used in certain structural components. Asbestos is normally maintained in a nonfriable condition. However, the asbestos-containing material is subject to deterioration, and friable asbestos may be encountered. Any cracks or holes in the transite siding may provide an avenue for this material to become friable and shall be avoided.

105-KE REACTOR BUILDING

7.0 HAZARDS IDENTIFIED (Continued)

Foul Odor/Sewer Gas. Because many restroom facilities are not in service, the possibility exists that the traps will dry out and emit a foul odor or sewer gas into the facility.

Facility Housekeeping/Storage. As a whole, facility housekeeping/storage is poor, primarily because of large amounts of material must be stored to support the 100-N fuel storage operations.

Animals and Insects. The facility is subject to periodic animal intrusion, most commonly by birds or mice although larger animals could be encountered. Animal feces should be avoided because it is a health hazard and may be radiologically contaminated. Spiders are common throughout the facility. Bats have been sighted in some retired reactor facilities and may be encountered in the facility. Bull snakes and rattlesnakes are in the area and have been encountered in other facilities in the past.

Chemicals. Recently, lead, oils, solvents, and greases have been found in the building. These items have been or will be removed for proper disposal. This emphasizes the fact that the potential remains for discovering old containers in any surplus facility. If chemicals or containers are found, they must not be disturbed and the building administrator shall be notified.

Lead. Lead brick and sheeting was used for shielding purposes throughout the building. Some of this lead remains within the structure and should be avoided because of oxidation potential.

105-KE REACTOR BUILDING

110-KE GAS STORAGE FACILITY**1.0 LOCATION**

The 110-KE Gas Storage Facility is located in the 100-K Area.

2.0 PURPOSE/HISTORY

The 110-KE Gas Storage Facility was the receiving and storage area at the 115 Building for the reactor graphite cooling media gas.

3.0 DESCRIPTION/DIMENSIONS

The 110-KE Gas Storage Facility is an outdoor gas unloading and storage area consisting of a number of 61-cm-diameter by 24.4-m-long (24-in.-diameter by 80-ft-long), high-pressure helium tanks, and four large diameter tanks used for CO₂. The gas storage facility was served by a railroad spur and had equipment for transferring gas at high pressure.

4.0 REFERENCE

Photograph: 92080357-13CN

5.0 UTILITIES AND SAFETY SYSTEMS

Intrusion Alarm	Yes []	No [x]	Unknown []
Heat	Yes []	No [x]	Unknown []
Ventilation	Yes []	No [x]	Unknown []
Air Conditioning	Yes []	No [x]	Unknown []
Electricity	Yes []	No [x]	Unknown []
Fire Detection	Yes []	No [x]	Unknown []
Fire Suppression	Yes []	No [x]	Unknown []
Compressed Air	Yes []	No [x]	Unknown []
Vacuum Air	Yes []	No [x]	Unknown []
Breathing Air	Yes []	No [x]	Unknown []
Water	Yes []	No [x]	Unknown []
Drain	Yes []	No [x]	Unknown []
Emergency Shower	Yes []	No [x]	Unknown []
Exclusion Fence	Yes [x]	No []	Unknown []
Air Sampling	Yes []	No [x]	Unknown []

6.0 BUILDING PHYSICAL STATUS

Interior Condition:	Fair
Exterior Condition:	Poor
Roof Condition:	Poor
Operational Equipment:	Not applicable
Radiological Products:	To be determined
Chemical Products:	To be determined

110-KE GAS STORAGE FACILITY

7.0 HAZARDS IDENTIFIED

The building has some exposed wiring. There are unposted confined spaces in and around the building. Unused restroom facilities are prone to having the traps dry, thereby emitting an objectionable odor and possibly a dangerous gas.

Because of the nature and age of the facilities, conditions and potential hazards will change periodically. Therefore, caution must be taken by all personnel entering the facility to ensure personal safety.

The facility is subject to periodic vermin intrusion. Animal feces should be avoided because it is a health hazard and may be radiologically contaminated. Spiders, bull snakes, and rattlesnakes are common throughout the area and have been encountered in other facilities in the past.

110-KE GAS STORAGE FACILITY

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115-KE GAS RECIRCULATION BUILDING**1.0 LOCATION**

The 115-KE Gas Recirculation Building is located in the 100-K Area.

2.0 PURPOSE/HISTORY

The 115-KE Gas Recirculation Building housed gas circulating pumps and associated equipment for the reactor gas coolant system.

3.0 DESCRIPTION/DIMENSIONS

The 115-KE Gas Recirculation Building is a single-story reinforced concrete structure 34.6 m by 10.4 m (113.5 ft by 34 ft), with a total area of 360.5 m² (3,880 ft²). The building is 6.1 m (20 ft) above grade and 6.1 m (20 ft) below grade, with a reinforced concrete foundation and floor and a corrugated transite slab roof with built-up asphalt and gravel. The building contains circulating gas blowers, gas dryers, filters, heat exchangers, and related instruments and piping.

4.0 REFERENCE

Photograph: 92080357-12CN

5.0 UTILITIES AND SAFETY SYSTEMS

Intrusion Alarm	Yes []	No [x]	Unknown []
Heat	Yes []	No [x]	Unknown []
Ventilation	Yes []	No [x]	Unknown []
Air Conditioning	Yes []	No [x]	Unknown []
Electricity	Yes [x]	No []	Unknown []
Fire Detection	Yes []	No [x]	Unknown []
Fire Suppression	Yes []	No [x]	Unknown []
Compressed Air	Yes []	No [x]	Unknown []
Vacuum Air	Yes []	No [x]	Unknown []
Breathing Air	Yes []	No [x]	Unknown []
Water	Yes []	No [x]	Unknown []
Drain	Yes []	No [x]	Unknown []
Emergency Shower	Yes []	No [x]	Unknown []
Exclusion Fence	Yes [x]	No []	Unknown []
Air Sampling	Yes []	No [x]	Unknown []

115-KE GAS RECIRCULATION BUILDING

6.0 BUILDING PHYSICAL STATUS

Interior Condition:	Fair
Exterior Condition:	Poor
Roof Condition:	Poor
Operational Equipment:	Not applicable
Radiological Products:	To be determined
Chemical Products:	To be determined

7.0 HAZARDS IDENTIFIED

The building has some exposed wiring. There are unposted confined spaces in and around the building. Unused restroom facilities are prone to having the traps dry, thereby emitting an objectionable odor and possibly a dangerous gas.

Because of the nature and age of the facilities, conditions and potential hazards will change periodically. Therefore, caution must be taken by all personnel entering the facility to ensure personal safety.

The facility is subject to periodic vermin intrusion. Animal feces should be avoided because it is a health hazard and may be radiologically contaminated. Spiders, bull snakes, and rattlesnakes are common throughout the area and have been encountered in other facilities in the past.

115-KE GAS RECIRCULATION BUILDING

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116-KE REACTOR EXHAUST STACK**1.0 LOCATION**

The 116-KE Reactor Exhaust Stack is located in the 100-K Area.

2.0 PURPOSE/HISTORY

The 116-KE Reactor Exhaust Stack discharged ventilation air 61 m (200 ft) above grade from the 105-KE Building. Exhaust air flowed through concrete ducts from the 105-KE Building directly out the exhaust stack. Following completion of the confinement project in the 1950's, the air was diverted through underground, reinforced concrete ducts to the 117-KE Filter Building. After flowing through the filters, the air went through belowgrade and abovegrade concrete ducts into the exhaust stack.

3.0 DESCRIPTION/DIMENSIONS

The stack is a monolithic, reinforced concrete structure 53.3 m (175 ft) above grade and 3 m (10 ft) below grade, with a 4.9-m (16-ft) outside diameter at the base. In general, the wall thickness is 0.46 m (1.5 ft) at the base and 0.3 m (1 ft) at the top. An opening at the bottom, with a steel door cover, provides access to the interior of the stack. The stack is supported on a solid concrete base, which in turn is supported by a solid concrete, octagonal-shaped foundation. The octagonal base measures 5.6 m (18.5 ft) side-to-side and is 3.5 m (11.5 ft) thick. The bottom octagonal foundation measures 8.2 m (27 ft) side-to-side and is 1.8 m (6 ft) thick.

4.0 REFERENCE

Photograph: 92080357-18CN

5.0 UTILITIES AND SAFETY SYSTEMS

Intrusion Alarm	Yes []	No [x]	Unknown []
Heat	Yes []	No [x]	Unknown []
Ventilation	Yes []	No [x]	Unknown []
Air Conditioning	Yes []	No [x]	Unknown []
Electricity	Yes []	No [x]	Unknown []
Fire Detection	Yes []	No [x]	Unknown []
Fire Suppression	Yes []	No [x]	Unknown []
Compressed Air	Yes []	No [x]	Unknown []
Vacuum Air	Yes []	No [x]	Unknown []
Breathing Air	Yes []	No [x]	Unknown []
Water	Yes []	No [x]	Unknown []
Drain	Yes []	No [x]	Unknown []
Emergency Shower	Yes []	No [x]	Unknown []
Exclusion Fence	Yes [x]	No []	Unknown []
Air Sampling	Yes []	No [x]	Unknown []

116-KE REACTOR EXHAUST STACK

6.0 BUILDING PHYSICAL STATUS

Interior Condition:	To be determined
Exterior Condition:	To be determined
Roof Condition:	To be determined
Operational Equipment:	To be determined
Radiological Products:	To be determined
Chemical Products:	To be determined

7.0 HAZARDS IDENTIFIED

Because of the nature and age of the facilities, conditions and potential hazards will change periodically. Therefore, caution must be taken by all personnel entering the facility to ensure personal safety.

The facility is subject to periodic vermin intrusion. Animal feces should be avoided because it is a health hazard and may be radiologically contaminated. Spiders, bull snakes, and rattlesnakes are common throughout the area and have been encountered in other facilities in the past.

116-KE REACTOR EXHAUST STACK

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117-KE EXHAUST AIR FILTER BUILDING

1.0 LOCATION

The 117-KE Exhaust Air Filter Building is located in the 100-K Area.

2.0 PURPOSE/HISTORY

The 117-KE Exhaust Air Filter Building filtered ventilation air was exhausted from the confinement zone of the 105-KE Reactor Building before it was discharge to the atmosphere through the 105-KE Stack.

3.0 DESCRIPTION/DIMENSIONS

The 117-KE Exhaust Air Filter Building is a reinforced concrete structure almost completely below grade. It housed the reactor building exhaust air filters and air flow control system. Reactor building exhaust gases (primarily ventilation gases) were directed to the exhaust filter building where the air passed through "absolute" (particulate) and "halogen" (activated charcoal) filters and was then discharged through the 116-KE Reactor Stack. The dimensions are 18 m long by 11.9 m wide by 10.7 m high (59 ft long by 39 ft wide by 35 ft high), with about 2.4 m (8 ft) above grade.

The 117-KE Exhaust Air Filter Building contains two identical filter cells separated by a two-story operating gallery. The two-story gallery is almost entirely below grade, with earth mounded up the side walls and gunite applied to reduce erosion of the berm. Large steel hatch covers serve as the roof. The walls are constructed of reinforced concrete.

A sump pump is located at the lowest point in the building. An in-line axial vane fan is contained in a small concrete cell adjacent to the filter building to provide ventilation in the facility during maintenance on the filters and equipment. The main ventilation ducts are approximately 1.5 m wide by 3.5 m high (5 ft wide by 11.5 ft high).

The inlet and exhaust ducts (tunnels) have large turning vanes to deflect air into or out of the filter cells. Building piping includes a minimum amount of small diameter pipes for service water, compressed air, and instrument lines. A small amount of electrical wiring and switchgear was required for building lighting and electrical power service. Concrete covers are provided for each filter frame location. To facilitate decontamination and ensure a 100 percent seal, the interior surfaces of the buildings have been coated with polyvinyl to seal the cracks.

4.0 REFERENCE

Photograph: 92080357-14CN

117-KE EXHAUST AIR FILTER BUILDING

5.0 UTILITIES AND SAFETY SYSTEMS

Intrusion Alarm	Yes []	No [x]	Unknown []
Heat	Yes []	No [x]	Unknown []
Ventilation	Yes [x]	No []	Unknown []
Air Conditioning	Yes []	No [x]	Unknown []
Electricity	Yes [x]	No []	Unknown []
Fire Detection	Yes []	No [x]	Unknown []
Fire Suppression	Yes []	No [x]	Unknown []
Compressed Air	Yes []	No [x]	Unknown []
Vacuum Air	Yes []	No [x]	Unknown []
Breathing Air	Yes []	No [x]	Unknown []
Water	Yes []	No [x]	Unknown []
Drain	Yes []	No [x]	Unknown []
Emergency Shower	Yes []	No [x]	Unknown []
Exclusion Fence	Yes [x]	No []	Unknown []
Air Sampling	Yes []	No [x]	Unknown []

6.0 BUILDING PHYSICAL STATUS

Interior Condition:	Fair
Exterior Condition:	Poor
Roof Condition:	Poor
Operational Equipment:	Not applicable
Radiological Products:	To be determined
Chemical Products:	To be determined

7.0 HAZARDS IDENTIFIED

The building has some exposed wiring. There are unposted confined spaces in and around the building. Unused restroom facilities are prone to the traps drying, thereby emitting an objectionable odor and possibly a dangerous gas.

Because of the nature and age of the facilities, conditions and potential hazards will change periodically. Therefore, caution must be taken by all personnel entering the facility to ensure personal safety.

The facility is subject to periodic vermin intrusion. Animal feces should be avoided because it is a health hazard and may be radiologically contaminated. Spiders, bull snakes, and rattlesnakes are common throughout the area and have been encountered in other facilities in the past.

117-KE EXHAUST AIR FILTER BUILDING

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166-AKE OIL STORAGE FACILITY**1.0 LOCATION**

The 166-AKE Oil Storage Facility is located in the 100-K Area.

2.0 PURPOSE/HISTORY

This facility was used for oil and grease storage.

3.0 DESCRIPTION/DIMENSIONS

The 166-AKE Oil Storage Facility is a 26.8-m² (288-ft²) butler building.

4.0 REFERENCE

Photograph: 92080357-16CN

5.0 UTILITIES AND SAFETY SYSTEMS

Intrusion Alarm	Yes []	No [x]	Unknown []
Heat	Yes []	No [x]	Unknown []
Ventilation	Yes []	No [x]	Unknown []
Air Conditioning	Yes []	No [x]	Unknown []
Electricity	Yes [x]	No []	Unknown []
Fire Detection	Yes []	No [x]	Unknown []
Fire Suppression	Yes []	No [x]	Unknown []
Compressed Air	Yes []	No [x]	Unknown []
Vacuum Air	Yes []	No [x]	Unknown []
Breathing Air	Yes []	No [x]	Unknown []
Water	Yes []	No [x]	Unknown []
Drain	Yes []	No [x]	Unknown []
Emergency Shower	Yes []	No [x]	Unknown []
Exclusion Fence	Yes [x]	No []	Unknown []
Air Sampling	Yes []	No [x]	Unknown []

6.0 BUILDING PHYSICAL CONDITION

Interior Condition:	Fair
Exterior Condition:	Poor
Roof Condition:	Poor
Operational Equipment:	Not applicable
Radiological Products:	To be determined
Chemical Products:	To be determined

166-AKE OIL STORAGE FACILITY

7.0 HAZARDS IDENTIFIED

This building is isolated and should not be entered unless a specific safety appraisal is performed prior to entry.

Because of the nature and age of the facilities, conditions and potential hazards will change periodically. Therefore, caution must be taken by all personnel entering the facility to ensure personal safety.

The facility is subject to periodic vermin intrusion. Animal feces should be avoided because it is a health hazard and may be radiologically contaminated. Spiders, bull snakes, and rattlesnakes are common throughout the area and have been encountered in other facilities in the past.

166-AKE OIL STORAGE FACILITY

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1713-KER WAREHOUSE**1.0 LOCATION**

The 1713-KER Warehouse is located in the 100-K Area.

2.0 PURPOSE/HISTORY

The 1713-KER Warehouse stored houserman partitions, electrical supplies, and miscellaneous storage.

3.0 DESCRIPTION/DIMENSIONS

The 1713-KER Warehouse is a 74.3-m² (800-ft²) sheet metal butler building with concrete floors and footing.

4.0 REFERENCE

Photograph: 92080357-15CN

5.0 UTILITIES AND SAFETY SYSTEMS

Intrusion Alarm	Yes []	No [x]	Unknown []
Heat	Yes []	No [x]	Unknown []
Ventilation	Yes []	No [x]	Unknown []
Air Conditioning	Yes []	No [x]	Unknown []
Electricity	Yes [x]	No []	Unknown []
Fire Detection	Yes []	No [x]	Unknown []
Fire Suppression	Yes []	No [x]	Unknown []
Compressed Air	Yes []	No [x]	Unknown []
Vacuum Air	Yes []	No [x]	Unknown []
Breathing Air	Yes []	No [x]	Unknown []
Water	Yes []	No [x]	Unknown []
Drain	Yes []	No [x]	Unknown []
Emergency Shower	Yes []	No [x]	Unknown []
Exclusion Fence	Yes [x]	No []	Unknown []
Air Sampling	Yes []	No [x]	Unknown []

6.0 BUILDING PHYSICAL STATUS

Interior Condition:	Fair
Exterior Condition:	Poor
Roof Condition:	Poor
Operational Equipment:	Not applicable
Radiological Products:	To be determined
Chemical Products:	To be determined

1713-KER WAREHOUSE

7.0 HAZARDS IDENTIFIED

This building is isolated and should not be entered unless a specific safety appraisal is performed prior to entry. Visual inspection of the roof surface will not always indicate structural integrity, and some cracked roofing panels have been noted. ALL ACCESS TO ROOF STRUCTURES REQUIRES SPECIFIC SAFETY EVALUATIONS AND WRITTEN AUTHORIZATION FROM THE FACILITY MANAGER.

Because of the nature and age of the facilities, conditions and potential hazards will change periodically. Therefore, caution must be taken by all personnel entering the facility to ensure personal safety.

The facility is subject to periodic vermin intrusion. Animal feces should be avoided because it is a health hazard and may be radiologically contaminated. Spiders, bull snakes, and rattlesnakes are common throughout the area and have been encountered in other facilities in the past.

1713-KER WAREHOUSE

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105-KW REACTOR BUILDING

1.0 LOCATION

The 105-KW Reactor Building is located in the 100-K Area at the west end of the 105-KE/KW exclusion area fence.

2.0 PURPOSE/HISTORY

The 105-KW Reactor Building was a third generation designed plutonium production reactor. The reactor is larger in size than the six older reactors with approximately twice the production capacity. An expanded special irradiations test loop and corrosion study facility was incorporated in the design of the 105-KW Reactor. This facility is connected to the 1706-KE and 1706-KER operations.

3.0 DESCRIPTION/DIMENSIONS

The 105-KW Reactor Building is a concrete and structural steel multistory structure 83.8 m by 65 m by 36.6 m (275 ft by 213 ft by 120 ft), with a total area of 5,450 m² (58,675-ft²). The building has reinforced concrete or transite siding with built-up asphalt and gravel surfacing. It contains the reactor, control room, offices, conference room, lunchroom, change room, spent fuel storage areas, ventilation systems, and certain test facilities. The building is zoned to control airflow from office and service areas to potentially contaminated zones where the air is exhausted through an external high efficiency filter system.

The unit consists of (1) a reactor block, made up of the graphite moderator stack, biological and thermal shields, process tubes, and the safety and control systems, and (2) contaminated portions of the reactor building.

Reactor Block. The reactor block is located near the center of the building. When facing the reactor front face, the horizontal control rod penetrations are on the left side of the reactor block, and the safety rod penetrations are on the top of the reactor. Fuel discharge and storage areas are located adjacent to the rear face of the reactor block. Experimental test penetrations are on the right side. The reactor block consists of a graphite moderator stack encased in cast iron thermal shielding and a biological shield consisting of high density aggregate concrete. The entire block rests on a massive concrete foundation. The block weighs approximately 9,145 metric tons (9,000 tons) and is 14 m high by 14 m wide by 12.2 m deep (46 ft high by 46 ft wide by 40 ft deep).

Storage Basin. The fuel storage basin served as a collection, storage, and transfer facility for the irradiated fuel elements discharged from the reactor. It consists of a fuel element pickup area, the storage area, and the transfer area. Irradiated fuel elements were stacked in buckets in the pickup area, transported by monorail to the storage area, and held to allow decay of short-lived radionuclides prior to reprocessing.

105-KW REACTOR BUILDING

3.0 DESCRIPTION/DIMENSIONS (Continued)

Following storage, the buckets of fuel elements were moved to the transfer area, placed in lead-shielded casks, and moved into a railroad well for transport to the chemical processing facilities. A wash pad, which was used for reclaiming contaminated tools and reusable reactor components, and an underwater inspection facility are also in the storage basin area. The basin is 6.7 m (22 ft) deep, has a slotted steel grating floor suspended from the ceiling, and contains 6.1 m (20 ft) of water during operating periods. Average thickness of the outside walls and bottom of the basin is 50.8 cm (20 in.) and 15.2 cm (6 in.) respectively.

4.0 REFERENCE

Photograph: 93070619-87CN

5.0 UTILITIES AND SAFETY SYSTEMS

Intrusion Alarm	Yes []	No []	Unknown [x]
Heat	Yes []	No []	Unknown [x]
Ventilation	Yes []	No []	Unknown [x]
Air Conditioning	Yes []	No []	Unknown [x]
Electricity	Yes []	No []	Unknown [x]
Fire Detection	Yes []	No []	Unknown [x]
Fire Suppression	Yes []	No []	Unknown [x]
Compressed Air	Yes []	No []	Unknown [x]
Vacuum Air	Yes []	No []	Unknown [x]
Breathing Air	Yes []	No []	Unknown [x]
Water	Yes []	No []	Unknown [x]
Drain	Yes []	No []	Unknown [x]
Emergency Shower	Yes []	No []	Unknown [x]
Exclusion Fence	Yes []	No []	Unknown [x]
Air Sampling	Yes []	No []	Unknown [x]

6.0 BUILDING PHYSICAL STATUS

Interior Condition:	Good
Exterior Condition:	Fair
Roof Condition:	Fair
Operational Equipment:	Fair
Radiological Products:	Activation Products
Chemical Products:	Asbestos, others to be determined during decommissioning

105-KW REACTOR BUILDING

7.0 HAZARDS IDENTIFIED

Radiological Hazards

The 105-KW Reactor Building is a radiologically controlled area. Radioactive contamination is essentially all activation and corrosion products (beta-gamma emitters) from reactor operations. Routine entry and exit requirements are identified in the Radiation Work Permit (RWP), which is posted at the facility entrance. Nonroutine activities require a special RWP be prepared. RWP requirements are mandatory.

Surface Contamination Areas

Persons must stay clear of posted surface contamination areas in the 105-KW Reactor Building. Specific posted surface contamination areas include the fuel storage basins, the C elevator at the front face, the front face work area, the entire rear face area, the reactor's top, the rear face tool room and entry, and the valve pit area. The RWP for each of these areas defines anticontamination clothing requirements for access to these areas. Radon in this building presents a problem with non-cotton clothing, which attracts the radon, and will be detected during full-body scans required before exiting the K Area.

Industrial Hazards

The 105-KW Reactor Building is an inactive facility, but it is entered on a monthly surveillance basis to support the N Reactor fuel storage in the storage basins. All areas of the building have precast gypsum panels that have severely deteriorated. The entire building is a hard-hat area. The front face work area, the control room, and office spaces have been used to store numerous articles to support the fuel storage operations. Other areas of the facility are less frequently entered; additional caution and preplanning are warranted when entering these area.

Fall Hazards

The absence of guardrails on the building's multilevel flat roofs presents a potential fall hazard.

Roof structures, which are comprised of transite panels on 2.4-m (8-ft) centers for the main load bearing structural member, are in poor condition. However, visual inspection of the roof surface will not always indicate structural integrity, and some cracked roofing panels have been noted. ALL ACCESS TO ROOF STRUCTURES REQUIRES SPECIFIC SAFETY EVALUATIONS AND WRITTEN AUTHORIZATION FROM THE FACILITY MANAGER. This prohibition extends to near grade-level structures that are, in fact, roofs of subsurface rooms. One particularly suspect structure is on the west side of the building, approximately 0.6 m (2 ft) above grade.

Stairs, handrails, and guardrails around the facility stairs and subgrade structures are old and, in some cases, deteriorated. Wooden stairs and handrails are the most suspect and should not be relied on to provide a structural boundary.

105-KW REACTOR BUILDING

7.0 HAZARDS IDENTIFIED (Continued)

There have been reports of a fair amount of oil leaking from equipment in the building. This presents a slipping hazard and must be avoided.

Confined Spaces

There are numerous confined spaces under concrete cover blocks, in accessible water basins, and in drains, manways, and valve pits around the building. Confined spaces shall be entered after following the prescribed actions listed in the *Industrial Safety Manual*, WHC-CM-4-3, Section W-13.

Energy Sources

The facility is powered by multiple 480-VAC electrical feed with dry-type stepdown transformers for lighting distribution. The switchgear is aged and must be operated with extreme caution. Written authorization and work instructions are required for all 480-volt switchgear operation. All electrical lines should be considered to be energized until proven otherwise.

There are missing conduit closures, light bulbs, and fixture covers on items that may contain energized wires, some of which may be bare. **DO NOT TOUCH ANY ELECTRICAL WIRING OR TRANSFER EQUIPMENT UNLESS SPECIFICALLY ADDRESSED IN AN ASSIGNED WORK PACKAGE.**

Extension cords and double-insulated power cords have been used in the past to supply portable heaters and many other loads. Many of these are expected to be energized and may present an overload or fire hazard.

Openings in electrical and instrumentation cabinets may contain energized stabs and must be avoided until covered or removed.

The 105-KW Reactor Building contains old rigging material/equipment. None of this material/equipment shall be placed in service until it is certified for use and tagged accordingly.

The first and second floor of the fan room are essentially an operational area. This is the location of the air compressors and receivers to support the 100-N fuel storage. Improper guarding and posting of auto-start equipment have been noted.

Hygiene Hazards

Asbestos. Piping, electrical wire insulation, and ventilation components are insulated with asbestos-containing materials, and transite is used in certain structural components. Asbestos is normally maintained in a nonfriable condition; however, the asbestos-containing material is subject to deterioration, and friable asbestos may be encountered. Any cracks or holes in the transite siding may provide an avenue for this material to become friable and shall be avoided.

105-KW REACTOR BUILDING

7.0 HAZARDS IDENTIFIED (Continued)

Animals and Insects. The facility is subject to periodic animal intrusion, most commonly by birds or mice although larger animals could be encountered. Animal feces should be avoided because it is a health hazard and may be radiologically contaminated. Spiders are common throughout the facility. Bats have been sighted in some retired reactor facilities and may be encountered in the facility. Bull snakes and rattlesnakes are in the area and have been encountered in other facilities in the past.

An inordinate number of dead birds have been found in this facility. The reason for this is unclear, but all carcasses should be avoided unless specific direction is provided for removal.

Chemicals. Lead, oils, greases, and spray cans have recently been found in the building. These items have been or will be removed for proper disposal. This emphasizes the fact that the potential remains for discovering old containers in any surplus facility. If chemicals or containers are found, they must not be disturbed and the building administrator shall be notified.

The ethylene glycol tank in the fan room (heating system expansion tank) is 40 percent full.

There are red oil manometers in the intake air plenums in the fan room.

Lead. Lead brick and sheeting were used for shielding purposes throughout the building. Some of this lead remains within the structure and should be avoided because of oxidation potential.

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105-KW REACTOR BUILDING (118-KW-1)

110-KW GAS STORAGE FACILITY**1.0 LOCATION**

The 110-KW Gas Storage Facility is located in the 100-K Area.

2.0 PURPOSE/HISTORY

The 110-KW Gas Storage Facility is the unloading and storage area for the 115-KW Building, which provided helium cooling media gas for the reactor graphite block.

3.0 DESCRIPTION/DIMENSION

The 110-KW Gas Storage Facility is an outdoor gas storage area consisting of a number of 61-cm-diameter by 24.4-m-long (24-in.-diameter by 80-ft-long), high-pressure helium tanks and four large diameter, low-pressure tanks. The gas storage facility was served by a railroad spur and had equipment for transferring gas at high pressure.

4.0 REFERENCE

Photograph: 92080357-5CN

5.0 UTILITIES AND SAFETY SYSTEMS

Intrusion Alarm	Yes []	No [x]	Unknown []
Heat	Yes []	No [x]	Unknown []
Ventilation	Yes []	No [x]	Unknown []
Air Conditioning	Yes []	No [x]	Unknown []
Electricity	Yes []	No [x]	Unknown []
Fire Detection	Yes []	No [x]	Unknown []
Fire Suppression	Yes []	No [x]	Unknown []
Compressed Air	Yes []	No [x]	Unknown []
Vacuum Air	Yes []	No [x]	Unknown []
Breathing Air	Yes []	No [x]	Unknown []
Water	Yes []	No [x]	Unknown []
Drain	Yes []	No [x]	Unknown []
Emergency Shower	Yes []	No [x]	Unknown []
Exclusion Fence	Yes [x]	No []	Unknown []
Air Sampling	Yes []	No [x]	Unknown []

6.0 BUILDING PHYSICAL STATUS

Interior Condition:	Fair
Exterior Condition:	Poor
Roof Condition:	Poor
Operational Equipment:	Not applicable
Radiological Products:	To be determined
Chemical Products:	To be determined

110-KW GAS STORAGE FACILITY

7.0 HAZARDS IDENTIFIED

This building is isolated and should not be entered unless a specific safety appraisal is performed prior to entry. Visual inspection of the roof surface will not always indicate structural integrity, and some cracked roofing panels have been noted. ALL ACCESS TO ROOF STRUCTURES REQUIRES SPECIFIC SAFETY EVALUATIONS AND WRITTEN AUTHORIZATION FROM THE FACILITY MANAGER.

Because of the nature and age of the facilities, conditions and potential hazards will change periodically. Therefore, caution must be taken by all personnel entering the facility to ensure personal safety.

The facility is subject to periodic vermin intrusion. Animal feces should be avoided because it is a health hazard and may be radiologically contaminated. Spiders, bull snakes, and rattlesnakes are common throughout the area and have been encountered in other facilities in the past.

110-KW GAS STORAGE FACILITY

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115-KW GAS RECIRCULATION BUILDING**1.0 LOCATION**

The 115-KW Gas Recirculation Building is located in the 100-K Area.

2.0 PURPOSE/HISTORY

The 115-KW Gas Recirculation Building housed gas circulating pumps and associated equipment for the reactor gas coolant system.

3.0 DESCRIPTION/DIMENSIONS

The 115-KW Gas Recirculation Building is a single-story reinforced concrete structure 34.6 m by 10.4 m (113.5 ft by 34 ft), with a total area of 360.5 m² (3,880 ft²). The building is 6.1 m (20 ft) above grade and 6.1 m (20 ft) below grade. The building has a reinforced concrete foundation and floor, and a corrugated transite slab roof with built-up asphalt and gravel. The building contains circulating gas blowers, gas dryers, filters, heat exchangers, and related instruments and piping.

4.0 REFERENCE

Photograph: 92080357-2CN

5.0 UTILITIES AND SAFETY SYSTEMS

Intrusion Alarm	Yes []	No [x]	Unknown []
Heat	Yes []	No [x]	Unknown []
Ventilation	Yes []	No [x]	Unknown []
Air Conditioning	Yes []	No [x]	Unknown []
Electricity	Yes [x]	No []	Unknown []
Fire Detection	Yes []	No [x]	Unknown []
Fire Suppression	Yes []	No [x]	Unknown []
Compressed Air	Yes []	No [x]	Unknown []
Vacuum Air	Yes []	No [x]	Unknown []
Breathing Air	Yes []	No [x]	Unknown []
Water	Yes []	No [x]	Unknown []
Drain	Yes []	No [x]	Unknown []
Emergency Shower	Yes []	No [x]	Unknown []
Exclusion Fence	Yes [x]	No []	Unknown []
Air Sampling	Yes []	No [x]	Unknown []

115-KW GAS RECIRCULATION BUILDING

6.0 BUILDING PHYSICAL STATUS

Interior Condition:	Fair
Exterior Condition:	Poor
Roof Condition:	Poor
Operational Equipment:	Not applicable
Radiological Products:	To be determined
Chemical Products:	To be determined

7.0 HAZARDS IDENTIFIED

This facility is prone to many of the same hazards mentioned for the 105-KW Reactor Building. The unmarked confined spaces in open tanks and insect intrusion are specific items of concern.

This building is isolated and should not be entered unless a specific safety appraisal is performed prior to entry. Visual inspection of the roof surface will not always indicate structural integrity, and some cracked roofing panels have been noted. ALL ACCESS TO ROOF STRUCTURES REQUIRES SPECIFIC SAFETY EVALUATIONS AND WRITTEN AUTHORIZATION FROM THE FACILITY MANAGER.

Because of the nature and age of the facilities, conditions and potential hazards will change periodically. Therefore, caution must be taken by all personnel entering the facility to ensure personal safety.

The facility is subject to periodic vermin intrusion. Animal feces should be avoided because it is a health hazard and may be radiologically contaminated. Spiders, bull snakes, and rattlesnakes are common throughout the area and have been encountered in other facilities in the past.

115-KW GAS RECIRCULATION BUILDING

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116-KW REACTOR EXHAUST STACK**1.0 LOCATION**

The 116-KW Reactor Exhaust Stack is located in the 100-K Area.

2.0 PURPOSE/HISTORY

The 116-KW Reactor Exhaust Stack discharged ventilation air 61 m (200 ft) above grade from the 105-KW Building. Exhaust air flowed through concrete ducts from the 105-KW Building directly out the exhaust stack. Following completion of the confinement project in the 1950's, the air was diverted through underground, reinforced concrete ducts to the 117-KW Filter Building. After flowing through the filters, the air went through belowgrade and abovegrade concrete ducts into the exhaust stack.

3.0 DESCRIPTION/DIMENSIONS

The stack is a monolithic, reinforced concrete structure 53.3 m (175 ft) above grade and 3 m (10 ft) below grade, with a 4.9-m (16-ft) outside diameter at the base. In general, the wall thickness is 0.45 m (1.5 ft) at the base and 0.3 m (1 ft) at the top. An opening at the bottom, with a steel door cover, provides access to the interior of the stack. The stack is supported on a solid concrete base, which in turn is supported by a solid concrete, octagonal-shaped foundation. The octagonal base measures 5.6 m (18.5 ft) side-to-side and is 3.5 m (11.5 ft) thick. The bottom octagonal foundation measures 8.2 m (27 ft) side-to-side and is 1.8 m (6 ft) thick.

4.0 REFERENCE

Photograph: 92080357-16CN

5.0 UTILITIES AND SAFETY SYSTEMS

Intrusion Alarm	Yes []	No [x]	Unknown []
Heat	Yes []	No [x]	Unknown []
Ventilation	Yes []	No [x]	Unknown []
Air Conditioning	Yes []	No [x]	Unknown []
Electricity	Yes []	No [x]	Unknown []
Fire Detection	Yes []	No [x]	Unknown []
Fire Suppression	Yes []	No [x]	Unknown []
Compressed Air	Yes []	No [x]	Unknown []
Vacuum Air	Yes []	No [x]	Unknown []
Breathing Air	Yes []	No [x]	Unknown []
Water	Yes []	No [x]	Unknown []
Drain	Yes []	No [x]	Unknown []
Emergency Shower	Yes []	No [x]	Unknown []
Exclusion Fence	Yes [x]	No []	Unknown []
Air Sampling	Yes []	No [x]	Unknown []

116-KW REACTOR EXHAUST STACK

6.0 BUILDING PHYSICAL STATUS

Interior Condition:	To be determined
Exterior Condition:	To be determined
Roof Condition:	To be determined
Operational Equipment:	To be determined
Radiological Products:	To be determined
Chemical Products:	To be determined

7.0 HAZARDS IDENTIFIED

Because of the nature and age of the facilities, conditions and potential hazards will change periodically. Therefore, caution must be taken by all personnel entering the facility to ensure personal safety.

The facility is subject to periodic vermin intrusion. Animal feces should be avoided because it is a health hazard and may be radiologically contaminated. Spiders, bull snakes, and rattlesnakes are common throughout the area and have been encountered in other facilities in the past.

116-KW REACTOR EXHAUST STACK

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117-KW EXHAUST AIR FILTER BUILDING

1.0 LOCATION

The 117-KW Exhaust Air Filter Building is located in the 100-K Area.

2.0 PURPOSE/HISTORY

The 117-KW Exhaust Air Filter Building filtered ventilation air exhausted from the confinement zone of the 105-KW Reactor Building before its discharge to the atmosphere through the 105-KW Stack.

3.0 DESCRIPTION/DIMENSIONS

The 117-KW Exhaust Air Filter Building is a reinforced concrete structure 18 m by 11.9 m by 10.7 m (59 ft by 39 ft by 35 ft), with 2.4 m (8 ft) above grade. The 117-KW Exhaust Air Filter Building housed the reactor building exhaust air filters and air flow control system. The reactor building exhaust gases (primarily ventilation gases) were directed to the exhaust filter building where the air passed through absolute (particulate) and halogen (activated charcoal) filters and was then discharged through the 116-KW Reactor Stack. The building contains two identical filter cells separated by a two-story operating gallery, which is almost entirely below grade, with bermed side walls of earth and gunite.

Large steel hatch covers serve as the roof. The walls are constructed of reinforced concrete. A sump pump is located at the lowest point in the building. An in-line axial vane fan is contained in a small concrete cell adjacent to the filter building. The ventilation ducts are approximately 1.5 m (5 ft) wide and 3.5 m (11.5 ft) high. The inlet and exhaust tunnels have large turning vanes to deflect air into or out of the filter cells. Building piping includes a minimum amount of small diameter pipes for service water, compressed air, and instrument lines. A small amount of electrical wiring and switchgear was required for building lighting and electrical power service. Concrete covers are provided for each filter frame location. The interior surfaces of the buildings have been coated with polyvinyl to seal cracks and imperfections in the concrete.

4.0 REFERENCE

Photograph: 92080357-7CN

117-KW EXHAUST AIR FILTER BUILDING

5.0 UTILITIES AND SAFETY SYSTEMS

Intrusion Alarm	Yes []	No [x]	Unknown []
Heat	Yes []	No [x]	Unknown []
Ventilation	Yes [x]	No []	Unknown []
Air Conditioning	Yes [x]	No []	Unknown []
Electricity	Yes []	No [x]	Unknown []
Fire Detection	Yes []	No [x]	Unknown []
Fire Suppression	Yes []	No [x]	Unknown []
Compressed Air	Yes []	No [x]	Unknown []
Vacuum Air	Yes []	No [x]	Unknown []
Breathing Air	Yes []	No [x]	Unknown []
Water	Yes []	No [x]	Unknown []
Drain	Yes []	No [x]	Unknown []
Emergency Shower	Yes []	No [x]	Unknown []
Exclusion Fence	Yes [x]	No []	Unknown []
Air Sampling	Yes []	No [x]	Unknown []

6.0 BUILDING PHYSICAL STATUS

Interior Condition:	Fair
Exterior Condition:	Poor
Roof Condition:	Poor
Operational Equipment:	Not applicable
Radiological Products:	To be determined
Chemical Products:	To be determined

7.0 HAZARDS IDENTIFIED

This facility is prone to many of the same hazards mentioned for the 105-KW Reactor Building. The unmarked confined spaces in open tanks and insect intrusion are specific items of concern.

This building is isolated should not be entered unless a specific safety appraisal is performed prior to entry. Visual inspection of the roof surface will not always indicate structural integrity, and some cracked roofing panels have been noted. ALL ACCESS TO ROOF STRUCTURES REQUIRES SPECIFIC SAFETY EVALUATIONS AND WRITTEN AUTHORIZATION FROM THE FACILITY MANAGER.

Because of the nature and age of the facilities, conditions and potential hazards will change periodically. Therefore, caution must be taken by all personnel entering the facility to ensure personal safety.

The facility is subject to periodic vermin intrusion. Animal feces should be avoided because it is a health hazard and may be radiologically contaminated. Spiders, bull snakes, and rattlesnakes are common throughout the area and have been encountered in other facilities in the past.

117-KW EXHAUST AIR FILTER BUILDING

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Centimeter

Inches

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3 of 5

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165-KW POWER CONTROL BUILDING**1.0 LOCATION**

The 165-KW Power Control Building is located in the 100-K Area.

2.0 PURPOSE/HISTORY

The 165-KW Power Control Building provided housing for the power house, control room, valve pit, and electrical switchgear for the water supply system.

3.0 DESCRIPTION/DIMENSIONS

The 165-KW Power Control Building is a single-story concrete structure 73.2 m by 3.4 m by 4.6 m (240 ft by 11 ft by 15 ft), with reinforced concrete floors, walls, and a poured roof with built-up asphalt and gravel surfacing. The building consists of (1) the pump room and valve pit, with a steel grating floor providing work area; (2) the electrical area consisting of two concrete floors; and (3) the oil-fired steam plant and control room. There is an adjacent 230-kV switchyard, subsurface oil storage bunkers, and oil pump facilities (166-KW). The building's area is approximately 4,905 m² (52,800 ft²). The air compressors and receivers from this building have been removed and sent to the Boardman Naval Depot for reuse.

4.0 REFERENCE

Photograph: 93070619-78CN

5.0 UTILITIES AND SAFETY SYSTEMS

Intrusion Alarm	Yes []	No [x]	Unknown []
Heat	Yes [x]*	No []	Unknown []
Ventilation	Yes []	No [x]	Unknown []
Air Conditioning	Yes []	No [x]	Unknown []
Electricity	Yes [x]	No []	Unknown []
Fire Detection	Yes [x]	No []	Unknown []
Fire Suppression	Yes []	No [x]	Unknown []
Compressed Air	Yes []	No [x]	Unknown []
Vacuum Air	Yes []	No [x]	Unknown []
Breathing Air	Yes []	No [x]	Unknown []
Water	Yes [x]	No []	Unknown []
Drain	Yes [x]	No []	Unknown []
Emergency Shower	Yes []	No [x]	Unknown []
Exclusion Fence	Yes [x]	No []	Unknown []
Air Sampling	Yes []	No [x]	Unknown []

165-KW POWER CONTROL BUILDING

6.0 BUILDING PHYSICAL STATUS

Interior Condition:	Fair
Exterior Condition:	Poor
Roof Condition:	Poor
Operational Equipment:	Not applicable
Radiological Products:	To be determined
Chemical Products:	To be determined

7.0 HAZARDS IDENTIFIED

This facility is prone to many of the same hazards mentioned for the 105-KW Reactor Building. The unmarked confined spaces in open tanks and insect intrusion are specific items of concern.

This building is isolated and should not be entered unless a specific safety appraisal is performed prior to entry. Visual inspection of the roof surface will not always indicate structural integrity, and some cracked roofing panels have been noted. ALL ACCESS TO ROOF STRUCTURES REQUIRES SPECIFIC SAFETY EVALUATIONS AND WRITTEN AUTHORIZATION FROM THE FACILITY MANAGER.

Because of the nature and age of the facilities, conditions and potential hazards will change periodically. Therefore, caution must be taken by all personnel entering the facility to ensure personal safety.

The facility is subject to periodic vermin intrusion. Animal feces should be avoided because it is a health hazard and may be radiologically contaminated. Spiders, bull snakes, and rattlesnakes are common throughout the area and have been encountered in other facilities in the past.

165-KW POWER CONTROL BUILDING

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183-KW FILTER PLANT FACILITY

1.0 LOCATION

The 183-KW Filter Plant Facility is located in the 100 K Area.

2.0 PURPOSE/HISTORY

This information is not available.

3.0 DESCRIPTION/DIMENSIONS

The 183-KW Filter Plant Facility is a single-story T shaped structure referred to as the head house. This section of the 183 Complex contains a laboratory and sample room, chlorinator room, switchgear room, and operational area containing chemical feed equipment, storage tanks, water softeners, heat exchangers, pumps and other miscellaneous equipment for remote valving and flow control. One wing of the T-shape is 41.5 m by 9.5 m by 6.1 m (136 ft by 31 ft by 20 ft) high and the other wing is 21 m by 18.3 m by 6.1 m (70 ft by 60 ft by 20 ft) high. It has reinforced concrete foundations and floor, structural steel frame wall with transite siding, and a transite roof with built-up asphalt and gravel surfacing. The complex also contains a two-bay chlorine storage facility, 29 m by 11 m (95 ft by 35 ft), with a railroad spur to each bay, a flocculation and subsidence basin consisting of open-air reinforced concrete basins, mixing chambers, inlet and outlet flumes.

The total area of the 183-KW Filter Plant Facility is 26,755 m² (288,000 ft²). There is a filter area constructed of reinforced concrete, containing about 5,760 m² (62,000 ft²) of filter area. After leaving the filters, the water flows into two 34,068,600-L (9,000,000-gal) -underground concrete tanks. The cover over the tank is asphalt roofing build-up over a transite covering.

4.0 REFERENCE

Not available.

183-KW FILTER PLANT FACILITY

5.0 UTILITIES AND SAFETY SYSTEMS

Intrusion Alarm	Yes []	No [x]	Unknown []
Heat	Yes []	No [x]	Unknown []
Ventilation	Yes []	No [x]	Unknown []
Air Conditioning	Yes []	No [x]	Unknown []
Electricity	Yes [x]	No []	Unknown []
Fire Detection	Yes []	No [x]	Unknown []
Fire Suppression	Yes []	No [x]	Unknown []
Compressed Air	Yes []	No [x]	Unknown []
Vacuum Air	Yes []	No [x]	Unknown []
Breathing Air	Yes []	No [x]	Unknown []
Water	Yes [x]	No []	Unknown []
Drain	Yes [x]	No []	Unknown []
Emergency Shower	Yes []	No [x]	Unknown []
Exclusion Fence	Yes []	No [x]	Unknown []
Air Sampling	Yes []	No [x]	Unknown []

6.0 BUILDING PHYSICAL STATUS

Interior Condition:	Poor
Exterior Condition:	Fair
Roof Condition:	Poor
Operational Equipment:	Not applicable
Radiological Products:	To be determined
Chemical Products:	To be determined

7.0 HAZARDS IDENTIFIED

This building is isolated and not to be entered unless a specific safety appraisal is performed prior to entry. Visual inspection of the roof surface will not always indicate structural integrity, and some cracked roofing panels have been noted. All access to roof structures requires specific safety evaluations and written authorization from the facility manager.

Because of the nature and age of the facilities, conditions and potential hazards change periodically. Therefore, caution must be exercised by all personnel entering the facility to ensure their personal safety.

In addition, the facility is subject to periodic vermin intrusion. Animal feces should be avoided because it is a health hazard and may be radiologically contaminated. Spiders, bull snakes, and rattlesnakes are common throughout the area and have been encountered in other facilities in the past.

190-KW PROCESS WATER PUMP HOUSE**1.0 LOCATION**

The 190-KW Process Water Pump House is located in the 100-K Area.

2.0 PURPOSE/HISTORY

The 190-KW Process Water Pump House houses process and service water pumps and ventilation equipment. This facility supplied treated water to the reactor for cooling and other equipment that required cooling water, such as the oil-fired boilers.

3.0 DESCRIPTION/DIMENSIONS

The 190-KW Process Water Pump House is a single-story building with a concrete basement, reinforced concrete floors, and structural steel and corrugated transite walls. The roof is corrugated cement transite on steel girders with a 5-cm (2-in.) foam glass insulation and an asphalt gravel built-up surface. The approximate area is 4,425 m² (47,634 ft²).

4.0 REFERENCE

Photograph: 93070619-78CN

5.0 UTILITIES AND SAFETY SYSTEMS

Intrusion Alarm	Yes []	No [x]	Unknown []
Heat	Yes []	No [x]	Unknown []
Ventilation	Yes []	No [x]	Unknown []
Air Conditioning	Yes []	No [x]	Unknown []
Electricity	Yes [x]	No []	Unknown []
Fire Detection	Yes []	No [x]	Unknown []
Fire Suppression	Yes []	No [x]	Unknown []
Compressed Air	Yes []	No [x]	Unknown []
Vacuum Air	Yes []	No [x]	Unknown []
Breathing Air	Yes []	No [x]	Unknown []
Water	Yes [x]	No []	Unknown []
Drain	Yes [x]	No []	Unknown []
Emergency Shower	Yes []	No [x]	Unknown []
Exclusion Fence	Yes [x]	No []	Unknown []
Air Sampling	Yes []	No [x]	Unknown []

190-KW PROCESS WATER PUMP HOUSE

6.0 BUILDING PHYSICAL STATUS

Interior Condition:	Fair
Exterior Condition:	Poor
Roof Condition:	Poor
Operational Equipment:	Not applicable
Radiological Products:	To be determined
Chemical Products:	To be determined

7.0 HAZARDS IDENTIFIED

This facility is prone to many of the same hazards mentioned for the 105-KW Reactor Building. The unmarked confined spaces in open tanks and insect intrusion are specific items of concern.

This building is isolated and should not be entered unless a specific safety appraisal is performed prior to entry. Visual inspection of the roof surface will not always indicate structural integrity, and some cracked roofing panels have been noted. ALL ACCESS TO ROOF STRUCTURES REQUIRES SPECIFIC SAFETY EVALUATIONS AND WRITTEN AUTHORIZATION FROM THE FACILITY MANAGER.

Because of the nature and age of the facilities, conditions and potential hazards will change periodically. Therefore, caution must be taken by all personnel entering the facility to ensure personal safety.

The facility is subject to periodic vermin intrusion. Animal feces should be avoided because it is a health hazard and may be radiologically contaminated. Spiders, bull snakes, and rattlesnakes are common throughout the area and have been encountered in other facilities in the past.

190-KW PROCESS WATER PUMP HOUSE

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1714-KW WAREHOUSE**1.0 LOCATION**

The 1714-KW Warehouse is located in the 100-K Area.

2.0 PURPOSE/HISTORY

The 1714-KW Warehouse is used to store miscellaneous non-fissile material.

3.0 DESCRIPTION/DIMENSIONS

The 1714-KW Warehouse is an 74.3-m² (800-ft²) sheet metal butler building with concrete floors and footing.

4.0 REFERENCE

Photograph: 92080357-8CN

5.0 UTILITIES AND SAFETY SYSTEMS

Intrusion Alarm	Yes []	No [x]	Unknown []
Heat	Yes []	No [x]	Unknown []
Ventilation	Yes []	No [x]	Unknown []
Air Conditioning	Yes []	No [x]	Unknown []
Electricity	Yes [x]	No []	Unknown []
Fire Detection	Yes []	No [x]	Unknown []
Fire Suppression	Yes []	No [x]	Unknown []
Compressed Air	Yes []	No [x]	Unknown []
Vacuum Air	Yes []	No [x]	Unknown []
Breathing Air	Yes []	No [x]	Unknown []
Water	Yes []	No [x]	Unknown []
Drain	Yes []	No [x]	Unknown []
Emergency Shower	Yes []	No [x]	Unknown []
Exclusion Fence	Yes [x]	No []	Unknown []
Air Sampling	Yes []	No [x]	Unknown []

6.0 BUILDING PHYSICAL STATUS

Interior Condition:	Fair
Exterior Condition:	Poor
Roof Condition:	Poor
Operational Equipment:	Not applicable
Radiological Products:	To be determined
Chemical Products:	To be determined

1714-KW WAREHOUSE

7.0 HAZARDS IDENTIFIED

This facility is prone to many of the same hazards mentioned for the 105-KW Reactor Building. The unmarked confined spaces in open tanks and insect intrusion are specific items of concern.

This building is isolated and should not be entered unless a specific safety appraisal is performed prior to entry. Visual inspection of the roof surface will not always indicate structural integrity, and some cracked roofing panels have been noted. ALL ACCESS TO ROOF STRUCTURES REQUIRES SPECIFIC SAFETY EVALUATIONS AND WRITTEN AUTHORIZATION FROM THE FACILITY MANAGER.

Because of the nature and age of the facilities, conditions and potential hazards will change periodically. Therefore, caution must be taken by all personnel entering the facility to ensure personal safety.

The facility is subject to periodic vermin intrusion. Animal feces should be avoided because it is a health hazard and may be radiologically contaminated. Spiders, bull snakes, and rattlesnakes are common throughout the area and have been encountered in other facilities in the past.

1714-KW WAREHOUSE

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205-A PUREX SILICA GEL FACILITY

1.0 LOCATION

The 205-A PUREX Silica Gel Facility is located in the 200 East Area. The coordinates are N40300, W48800.

2.0 PURPOSE/HISTORY

The 205-A Silica Gel Facility is a prototype unit that was placed in service at the PUREX Plant in 1956 to prove process feasibility. Silica gel was found to selectively absorb zirconium and niobium contaminants in the uranium solution, derived from the solvent extraction systems of REDOX and PUREX Plants. The solution often required further treatment to meet product specifications with no significant loss of uranium. Upon successful demonstration of the process, the 205-A unit was converted for production use. A complete production-type silica gel facility was also built at REDOX. Because the PUREX prototype silica gel unit was not designed for continuous operations, the final uranium solution was often transferred to the REDOX silica gel unit for further treatment.

3.0 DESCRIPTION/DIMENSIONS

The 205-A PUREX Silica Gel Facility is approximately 4 m (12 ft) long, 3 m (10 ft) wide, and 3 m (8 ft) high and is constructed of fiberboard sheeting walls and a sheet metal roof.

The building, located within the 203-A basin, houses the deactivated silica gel beds and a concrete tank enclosed by a concrete dike. Silica beds are 210-L (55-gal) stainless steel drums shielded with a 0.6-cm (1/4-in.) steel plate. Other equipment includes four drums, two pumps and several rotoms.

4.0 REFERENCE

Photograph: 93070619-129CN

205-A PUREX SILICA GEL FACILITY - CONTINUED

5.0 UTILITIES AND SAFETY SYSTEMS

Intrusion Alarm	Yes []	No [x]	Unknown []
Heat	Yes []	No [x]	Unknown []
Ventilation	Yes []	No [x]	Unknown []
Air Conditioning	Yes []	No [x]	Unknown []
Electricity	Yes [x]	No []	Unknown []
Fire Detection	Yes []	No [x]	Unknown []
Fire Suppression	Yes []	No [x]	Unknown []
Compressed Air	Yes []	No [x]	Unknown []
Vacuum Air	Yes []	No [x]	Unknown []
Breathing Air	Yes []	No [x]	Unknown []
Water	Yes []	No [x]	Unknown []
Drain	Yes []	No [x]	Unknown []
Emergency Shower	Yes []	No [x]	Unknown []
Exclusion Fence	Yes []	No [x]	Unknown []
Air Sampling	Yes []	No []	Unknown [x]

6.0 BUILDING PHYSICAL STATUS

Interior Condition:	Fair
Exterior Condition:	Poor
Roof Condition:	Poor
Operational Equipment:	Not applicable
Radiological Products:	To be determined
Chemical Products:	To be determined

7.0 HAZARDS IDENTIFIED

This building is isolated and not to be entered unless a specific safety appraisal is performed prior to entry. Visual inspection of the roof surface will not always indicate structural integrity, and some cracked roofing panels have been noted. All access to roof structures requires specific safety evaluations and written authorization from the facility manager.

Because of the nature and age of the facilities, conditions and potential hazards change periodically. Therefore, caution must be exercised by all personnel entering the facility to ensure their personal safety.

In addition, the facility is subject to periodic vermin intrusion. Animal feces should be avoided because it is a health hazard and may be radiologically contaminated. Spiders, bull snakes, and rattlesnakes are common throughout the area and have been encountered in other facilities in the past.

205-A PUREX SILICA GEL FACILITY - CONTINUED

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241-A-431 TANK FARM VENTILATION BUILDING

1.0 LOCATION

The 241-A-431 Tank Farm Ventilation Building is located within the 241-A Tank Farm perimeter fence in the 200 East Area. The coordinates are N41100 and W47500.

2.0 PURPOSE/HISTORY

The 241-A-431 Building was constructed in 1953 to provide offgas de-entrainment for the six tanks in 241-A Tank Farm. It also received stack drainage from 296-A-11. The facility operated until its retirement in 1963.

3.0 DESCRIPTION/DIMENSIONS

The 241-A-431 Tank Farm Ventilation Building is a reinforced concrete structure. The outside dimensions are 6 m (21 ft) long, 5 m (16 ft) wide, and 8 m (25 ft) high; the lower 5 m (16 ft) are below grade. The walls are 20 cm (8 in.) thick and the building is divided into two main sections.

The section that houses the ventilation equipment is 3 m (10 ft) long, 5 m (16 ft) wide, and 3 m (9 ft) high. Equipment includes a fan, motor, and associated piping and instrumentation.

The section that houses the de-entrainment equipment is 3 m (11 ft) long, 5 m (16 ft) wide, and 8 m (25 ft) high. Equipment includes the de-entrainment tank, a 60-cm (24-in.) HEPA-filtered stack with sampling equipment, and drain lines to French Drains 216-A-16, 216-A-17, 216-A-23-A, and 216-A-23-B. The de-entrainment vessel is 3 m (10 ft) high and 2 m (6.5 ft) in diameter. It is constructed of steel plates. A 0.6-m (2-ft)-high lid is secured to the vessel with bolted flanges.

4.0 REFERENCE

Photograph: 93070619-131CN

Drawing: H-2-55940

241-A-431 TANK FARM VENTILATION BUILDING

5.0 UTILITIES AND SAFETY SYSTEMS

Intrusion Alarm	Yes []	No [x]	Unknown []
Heat	Yes []	No []	Unknown [x]
Ventilation	Yes [x]	No []	Unknown []
Air Conditioning	Yes []	No []	Unknown [x]
Electricity	Yes [x]	No []	Unknown []
Fire Detection	Yes []	No [x]	Unknown []
Fire Suppression	Yes []	No [x]	Unknown []
Compressed Air	Yes []	No [x]	Unknown []
Vacuum Air	Yes []	No [x]	Unknown []
Breathing Air	Yes []	No [x]	Unknown []
Water	Yes []	No [x]	Unknown []
Drain	Yes []	No [x]	Unknown []
Emergency Shower	Yes []	No []	Unknown []
Exclusion Fence	Yes [x]	No []	Unknown []
Air Sampling	Yes [x]	No []	Unknown []

6.0 BUILDING PHYSICAL STATUS

Interior Condition:	Fair
Exterior Condition:	Poor
Roof Condition:	Poor
Operational Equipment:	Not applicable
Radiological Products:	To be determined
Chemical Products:	To be determined

7.0 HAZARDS IDENTIFIED

This building is isolated and not to be entered unless a specific safety appraisal is performed prior to entry. Visual inspection of the roof surface will not always indicate structural integrity, and some cracked roofing panels have been noted. All access to roof structures requires specific safety evaluations and written authorization from the facility manager.

Because of the nature and age of the facilities, conditions and potential hazards change periodically. Therefore, caution must be exercised by all personnel entering the facility to ensure their personal safety.

In addition, the facility is subject to periodic vermin intrusion. Animal feces should be avoided because it is a health hazard and may be radiologically contaminated. Spiders, bull snakes, and rattlesnakes are common throughout the area and have been encountered in other facilities in the past.

241-A-431 TANK FARM VENTILATION BUILDING

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224-B CONCENTRATION FACILITY

1.0 LOCATION

The 224-B Concentration Facility is located in the 200 East Area. The coordinates are N42400 and W54100.

2.0 PURPOSE/HISTORY

The 224-B Concentration Facility was originally built as a process facility to handle final plutonium decontamination and concentration operations formerly performed in 221-B.

3.0 DESCRIPTION/DIMENSIONS

This building has three floors. The overall exterior dimensions of the first and second floor are 21 m (69 ft) wide, 60 m (197 ft) long, and 6 m (20 ft) high. The total area of each floor is 1071 m² (11,523 ft²). The third floor is 21 m (69 ft) wide, 14 m (45 ft) long, and 6 m (20 ft) high. The total area of the third floor is 837 m² (9,005 ft²).

The 224-B Concentration Facility is constructed of reinforced concrete and concrete block walls. The roof is reinforced concrete, edged in wood, with a built-up gravel and tar surface.

The building is divided into two main sections. One is the office and gallery section, and the other is the process cell station. The office and gallery section is separated from the process cell section by a 0.3-m (1-ft)-thick concrete wall.

The first floor of the office and gallery portion is partitioned for offices, storage, restrooms, change rooms, and building service equipment. There are three offices, the largest being 52 m² (560 ft²) in area. Building service equipment (BFU and electrical switchgear) is located in a room which is 8 m (26 ft) by 16 m (51 ft). A storage room next to the building service equipment room measures 5 m (16 ft) by 8 m (26 ft). First floor access to the building elevator is through this storage room. At the southwest end of the building, and adjacent to the largest office space, is the F-10 room. The F-10 room is 8 m (25 ft) by 10 m (33 ft), and loading is accomplished through a roll-up steel curtain type door.

224-B CONCENTRATION FACILITY - CONTINUED

3.0 DESCRIPTION/DIMENSIONS (Continued)

The second floor, on the gallery side of the building, is called the "pipe gallery," and the portion of it directly above the offices (lunchroom, changeroom, restrooms, etc.) is an open area approximately 10 m (33 ft) by 44 m (145 ft). Piping overhead restricts the clearance in this space to some extent. Entrance into the cell portion of the building is possible through any of the four air lock doors in this portion of the pipe gallery. The entrances into the cell portion lead out onto operating platforms, which are 3 m (10 ft) by 4 m (12 ft), and extend into the cell portion. The area on the second floor above the F-10 room was designed as a control room for processing activities in F-cell, and is designated the F-Operating Gallery. This space is 10 m (33 ft) by 16 m (51 ft).

The third floor of the gallery section is designated as the "operating gallery," and contains scales, tanks, and process operating control stations. This space does not extend over the F-Operating Gallery (on the second floor). Observation of the cell portion is possible from the operating gallery through specifically constructed lead glass windows.

The process cell portion of the building is approximately 8 m (27 ft) by 60 m (197 ft) and is divided into five separate cells 8 m (27 ft) by 9 m (28 ft). One cell, designated as F-Cell, measures 8 m (25 ft) by 16 m (51 ft). A stairwell and platform at the second story level occupies a 4 m (13 ft) and 8 m (26 ft) area of the F-Cell. At the second floor level there is a 0.75 m (2.5 foot) walkway that allows access around the outer walls of the cell portion, except for the F-Cell portion. The cells are three stories high and are divided by concrete walls that extend to the second floor level.

The concrete roof slabs are removable so that huge vessels or process equipment may be removed readily.

There are pedestrian entrances at ground level into each of the cells and a 4-m (12-ft)-wide by 6-m (21-ft)-high opening into the second floor. A concrete loading platform leads to the building elevator. The elevator is 2 m (7 ft) wide and 2 m (8 ft) high.

4.0 REFERENCE

Photograph: 93070619-175CN

Drawings: H-2-43231, W-72500

224-B CONCENTRATION FACILITY

5.0 UTILITIES AND SAFETY SYSTEMS

Intrusion Alarm	Yes []	No [x]	Unknown []
Heat	Yes [x]	No []	Unknown []
Ventilation	Yes [x]	No []	Unknown []
Air Conditioning	Yes [x]	No []	Unknown []
Electricity	Yes [x]	No []	Unknown []
Fire Detection	Yes []	No []	Unknown [x]
Fire Suppression	Yes []	No []	Unknown [x]
Compressed Air	Yes []	No []	Unknown [x]
Vacuum Air	Yes []	No []	Unknown [x]
Breathing Air	Yes []	No []	Unknown [x]
Water	Yes []	No []	Unknown [x]
Drain	Yes []	No []	Unknown [x]
Emergency Shower	Yes []	No []	Unknown [x]
Exclusion Fence	Yes []	No [x]	Unknown []
Air Sampling	Yes []	No []	Unknown [x]

6.0 BUILDING PHYSICAL STATUS

Interior Condition:	Fair
Exterior Condition:	Poor
Roof Condition:	Poor
Operational Equipment:	Not applicable
Radiological Products:	To be determined
Chemical Products:	To be determined

7.0 HAZARDS IDENTIFIED

Radiological Hazards

The 224-B Building is a radiologically controlled area. Radioactive contamination is primarily from fission products plutonium in the canyon area. Routine entry and exit requirements are identified in the Radiation Work Permit (RWP), which is posted at the facility entrance. RWP requirements are mandatory. Any canyon entry requires a special RWP.

Industrial Hazards

Visual inspection of the building's exterior revealed minor cracks in the concrete. Roof edges are deteriorating.

Fall Hazards

The absence of guardrails on the building's flat roofs presents a potential fall hazard. The roof structure is in good condition; however, visual inspection of the roof surface may not always indicate structural integrity. All access to the roofs requires specific safety evaluations and written authorization.

224-B CONCENTRATION FACILITY

7.0 HAZARDS IDENTIFIED (Continued)

Confined Spaces

There are unmarked confined spaces in the facility. Confined spaces shall only be entered after following the prescribed actions listed in *Industrial Safety Manual*, WHC-CM-4-3, Section W-13.

Energy Sources

This facility is powered from a single 480-volt power system that energizes new switchgear to power the building supply fans. The lighting systems were upgraded when the switchgear was installed. The electrical system on the first floor is in good condition. The electrical system on the second and third floors exhibits some of the same conditions that are prevalent in other surplus facilities (exposed wiring and open junction boxes). As in all facilities, any exposed conductor should be treated as energized until proven otherwise.

Hygiene Hazards

Asbestos. Piping, electrical wire insulation, and ventilation components are insulated with asbestos-containing materials, and transite is used in certain structural components. Normally, asbestos is maintained in a nonfriable condition. However, the asbestos-containing material is subject to deterioration, and friable asbestos may be encountered.

Animals and Insects. The facility is subject to periodic animal intrusion, most commonly by birds or mice although larger animals could be encountered. Animal feces should be avoided because it is a health hazard and may be radiologically contaminated. Spiders are common throughout the facility.

Chemicals. This facility was a chemical processing facility that used chemical solutions to process fuel. While the facility deactivation removed bulk materials and flushed systems, residual materials remain that should be avoided unless personnel are actively involved in removing this material and are using written instructions. Examples of chemical residue occur at pipe flanges and drains and pump/valve glands.

224-B CONCENTRATION FACILITY

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215-C GAS PREPARATION BUILDING**1.0 LOCATION**

The 215-C Gas Preparation Building is located in the 200 East Area. The coordinates are N42500 and W50200.

2.0 PURPOSE/HISTORY

The 215-C Building was built to provide compressed air for pneumatic equipment and instrument air. It also provided an inert gas system for use in the 201-C Hot Process Building when flammable solvents were used.

3.0 DESCRIPTION/DIMENSIONS

The building is 11 m (35 ft) long, 6 m (21 ft) wide, and 4 m (13 ft) high, with a total area of 76 m² (820 ft²). It has 10-cm (4-in.)-thick concrete floors and a 15-cm (6-in.) flat concrete slab roof. The equipment room is 8 m (27 ft) by 3 m (10 ft) and contains 20- to 25-cm (8- to 10-in.)-thick concrete equipment pads of various sizes. The concrete walls are 20 cm (8 in) thick. The vault is 4 m (12 ft) by 2 m (6 ft), with a 25-cm (10-in.)-thick concrete floor. There is a 5-m (15-ft) by 2-m (6-ft) cylinder storage deck lean-to on the south side of the building.

4.0 REFERENCE

Photograph: 93070619-121CN

Drawings: H-2-4004

5.0 UTILITIES AND SAFETY SYSTEMS

Intrusion Alarm	Yes []	No [x]	Unknown []
Heat	Yes [x]	No []	Unknown []
Ventilation	Yes [x]	No []	Unknown []
Air Conditioning	Yes [x]	No []	Unknown []
Electricity	Yes [x]	No []	Unknown []
Fire Detection	Yes [x]	No []	Unknown []
Fire Suppression	Yes [x]	No []	Unknown []
Compressed Air	Yes [x]	No []	Unknown []
Vacuum Air	Yes []	No [x]	Unknown []
Breathing Air	Yes []	No []	Unknown [x]
Water	Yes [x]	No []	Unknown []
Drain	Yes []	No []	Unknown [x]
Emergency Shower	Yes []	No []	Unknown [x]
Exclusion Fence	Yes []	No [x]	Unknown []
Air Sampling	Yes []	No [x]	Unknown []

215-C GAS PREPARATION BUILDING

6.0 BUILDING PHYSICAL STATUS

Interior Condition:	Fair
Exterior Condition:	Poor
Roof Condition:	Poor
Operational Equipment:	Not applicable
Radiological Products:	To be determined
Chemical Products:	To be determined

7.0 HAZARDS IDENTIFIED

This building is isolated and not to be entered unless a specific safety appraisal is performed prior to entry. Visual inspection of the roof surface will not always indicate structural integrity, and some cracked roofing panels have been noted. All access to roof structures requires specific safety evaluations and written authorization from the facility manager.

Because of the nature and age of the facilities, conditions and potential hazards change periodically. Therefore, caution must be taken by all personnel entering the facility to ensure their personal safety.

In addition, the facility is subject to periodic vermin intrusion. Animal feces should be avoided because it is a health hazard and may be radiologically contaminated. Spiders, bull snakes, and rattlesnakes are common throughout the area and have been encountered in other facilities in the past.

215-C GAS PREPARATION BUILDING - CONTINUED

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241-C-801 CESIUM LOADOUT BUILDING

1.0 LOCATION

The 241-C-801 Cesium Loadout Building is located in the 200 East Area at coordinates N42900 and W48100.

2.0 PURPOSE/HISTORY

The 241-C-801 Building was built in 1962 to provide cesium loadout facilities that were independent of the PUREX Plant for cesium. This freed fission-product equipment in PUREX to be devoted to other programs.

3.0 DESCRIPTION/DIMENSIONS

The 241-C-801 Building is 10 m (32 ft) long, 8 m (26 ft) wide, and 9 m (28 ft) high. The bottom 2.9 m (9.5 ft) of the building is constructed of concrete walls and foundations that are 0.4 to 0.5 m (1.3 to 1.7 ft) thick. This part of the building is covered with earth. The remainder of the building is a standard prefabricated metal structure with 22 gauge metal walls 10 m (32 ft) long, 8 m (26 ft) wide, and 4 m (12 ft) high. Main sections include the Loadout Room, which is 4 m (14 ft) by 6 m (20 ft); the Operating Room, which is 4 m (14 ft) by 4 m (12 ft) by 31 (10 ft); and the Valve Pit, which measures 2 m (8 ft) by 2 m (7 ft) by 2 m (8 ft).

The process equipment consists of two underground waste-storage tanks. One receives the effluent from the casks, and one acts as cesium-free storage.

4.0 REFERENCE

Photograph: 93070619-123CN

Drawings: H-2-4569

241-C-801 CESIUM LOADOUT BUILDING

5.0 UTILITIES AND SAFETY SYSTEMS

Intrusion Alarm	Yes []	No []	Unknown [x]
Heat	Yes []	No []	Unknown [x]
Ventilation	Yes []	No [x]	Unknown []
Air Conditioning	Yes [x]	No []	Unknown []
Electricity	Yes [x]	No []	Unknown []
Fire Detection	Yes []	No [x]	Unknown []
Fire Suppression	Yes []	No [x]	Unknown []
Compressed Air	Yes []	No [x]	Unknown []
Vacuum Air	Yes []	No [x]	Unknown []
Breathing Air	Yes []	No [x]	Unknown []
Water	Yes []	No [x]	Unknown []
Drain	Yes []	No [x]	Unknown []
Emergency Shower	Yes []	No [x]	Unknown []
Exclusion Fence	Yes [x]	No []	Unknown []
Air Sampling	Yes []	No [x]	Unknown []

6.0 BUILDING PHYSICAL STATUS

Interior Condition:	Fair
Exterior Condition:	Poor
Roof Condition:	Poor
Operational Equipment:	Not applicable
Radiological Products:	To be determined
Chemical Products:	To be determined

7.0 HAZARDS IDENTIFIED

This building is isolated and not to be entered unless a specific safety appraisal is performed prior to entry. Visual inspection of the roof surface will not always indicate structural integrity. Some cracked roofing panels have been noted. All access to roof structures requires specific safety evaluations and written authorization from the facility manager.

Because of the nature and age of the facilities, conditions and potential hazards change periodically. Therefore, caution must be taken by all personnel entering the facility to ensure their personal safety.

In addition, the facility is subject to periodic vermin intrusion. Animal feces should be avoided because it is a health hazard and may be radiologically contaminated. Spiders, bull snakes, and rattlesnakes are common throughout the area and have been encountered in other facilities in the past.

241-C-801 CESIUM LOADOUT BUILDING

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212-N, 212-P, AND 212-R STORAGE BUILDINGS**1.0 LOCATION**

The 211-N, 212-P, and 212-R Storage Buildings are located in the 200 North Area. The coordinates are: 212-N: N55300, W65700; 212-P: 55300, W63000; and 212-R: N55300, W60400.

2.0 PURPOSE/HISTORY

The 212-N, 212-P, and 212-R Storage Buildings were originally built in 1945 to provide underwater storage of irradiated slugs from the 100 Areas. Slugs were stored in the water-filled, 6.1-m (20-ft)-deep, reinforced concrete basins.

3.0 DESCRIPTION/DIMENSIONS

The 212-N, 212-P, and 212-R Buildings are identical storage structures. Each building is composed of two main sections and a heat room. Each of these sections has a concrete slab, roof, and walls constructed of concrete and concrete block. There are no windows.

The high roof, or transfer section, has an opening 5 m (15 ft) wide and 6 m (18 ft) high for the railroad to enter the building. The rail penetrates into the building 16 m (54 ft). The original 80-ton crane and associated motors, brake, and other equipment have been removed, but the crane rail is in place and centered over the railroad unloading area. The interior height of the unloading area is 11 m (35 ft) from the top of the rails to the ceiling. The height from the top of the rails to the top of the crane rail is 8 m (27 ft). At the rear of the railroad cut there are two transfer pits that are approximately 9 m (30 ft) deep. There are walkways that resemble inside docks on each side of this unloading area. The main walkway is 4 m (12 ft) by 23 m (74 ft) and the walkway on the other side is 2 m (5 ft) by 23 m (74 ft). The height from the walkways to the ceiling is 9 m (28 ft). The exterior dimensions are 8 m (27 ft) wide, 23 m (74 ft) long, and 9 m (30 ft) high.

The low roof section of the building is 4 m (12 ft) above grade and extends 5.49 m (18 ft) below grade. It has a 5-cm (2-in.) wood plank floor that is level with the walkways in the high roof section. This floor is 6 m (20 ft) above the floor of the storage basin, and 2 m (8 ft) from the ceiling. It is supported by 6-m (20-ft)-high concrete piers. The exterior dimensions are 15 m (49 ft) wide, 22 m (72 ft) long, and 4 m (12 ft) high.

Adjacent to the low roof section, and centered in relation to it, is a space 4 m (14 ft) by 8 m (26 ft), with a 2-m (8-ft)-high ceiling. At one time, this space housed the fan, heaters, and controls to prevent the water in the basin. Most of the equipment has been removed. The heater room is 4 m (14 ft) wide, 8 m (26 ft) long, and 4 m (12 ft) high.

The total area is 555 m² (5,970 ft²). The total area of the storage basin is 307 m² (3,300 ft²), and the transfer basin is 37 m² (400 ft²).

212-N, 212-P, AND 212-R STORAGE BUILDINGS

4.0 REFERENCE

Photographs: 93070619-116CN, 93070619-117CN, 93070619-118CN

Drawings: W-71674, W-71323

5.0 UTILITIES AND SAFETY SYSTEMS

Intrusion Alarm	Yes []	No []	Unknown [x]
Heat	Yes []	No [x]	Unknown []
Ventilation	Yes []	No [x]	Unknown []
Air Conditioning	Yes []	No [x]	Unknown []
Electricity	Yes [x]	No []	Unknown []
Fire Detection	Yes []	No [x]	Unknown []
Fire Suppression	Yes []	No [x]	Unknown []
Compressed Air	Yes []	No [x]	Unknown []
Vacuum Air	Yes []	No [x]	Unknown []
Breathing Air	Yes []	No [x]	Unknown []
Water	Yes []	No [x]	Unknown []
Drain	Yes []	No [x]	Unknown []
Emergency Shower	Yes []	No [x]	Unknown []
Exclusion Fence	Yes []	No [x]	Unknown []
Air Sampling	Yes []	No []	Unknown [x]

212-N, 212-P AND 212-R STORAGE BUILDINGS

6.0 BUILDING PHYSICAL STATUS

212-N

Interior Condition:	Fair
Exterior Condition:	Poor
Roof Condition:	Poor
Operational Equipment:	Not applicable
Radiological Products:	To be determined
Chemical Products:	To be determined

212-P

Interior Condition:	Fair
Exterior Condition:	Poor
Roof Condition:	Poor
Operational Equipment:	Not applicable
Radiological Products:	To be determined
Chemical Products:	To be determined

212-R

Interior Condition:	Fair
Exterior Condition:	Poor
Roof Condition:	Poor
Operational Equipment:	Not applicable
Radiological Products:	To be determined
Chemical Products:	To be determined

7.0 HAZARDS IDENTIFIED

212-N Storage Building

Radiological Hazards. The 212-N Building is a radiologically controlled area and an isolated facility. The loadout area is used for storage of plastic-wrapped, plutonium-contaminated hoods. There were very few operations at the facility and the level of radioactive contamination in the fuel basin is very low.

Surface Contamination Areas. The fuel storage basin and transfer bay are posted surface contamination areas. The Radiation Work Permit (RWP) defines anticontamination clothing requirements for access to this area. RWP requirements are mandatory.

Fall Hazards. The absence of guardrails on the building's flat roof presents a potential fall hazard. The roof structure is in good condition; however, visual inspection of the roof surface may not always indicate structural integrity. All access to roofs requires specific safety evaluations and written authorization.

212-N, 212-P AND 212-R STORAGE BUILDINGS

7.0 HAZARDS IDENTIFIED (Continued)

212-N Storage Building

Confined Spaces. The basin area is a confined space and should not be entered without specific approval. Confined spaces shall only be entered after following the prescribed actions listed in *Industrial Safety Manual*, WHC-CM-4-3, Section W-13.

Energy sources. The facility has no electrical power.

Asbestos. Piping, electrical wire insulation, and ventilation components are insulated with asbestos-containing materials, and transite is used in certain structural components. Normally, asbestos is maintained in a nonfriable condition. However, the asbestos-containing material is subject to deterioration, and friable asbestos may be encountered.

Animals and Insects. The building is subject to animal intrusion, most commonly by birds or mice, although larger animals could be encountered. Animal feces should be avoided because it is a health hazard and may be radiologically contaminated. Spiders are common throughout the facility.

212-P Storage Building

Radiological Hazards. There were very few operations at the facility, and the level of radioactive contamination is very low.

Surface Contamination Areas. The fuel storage basin is a posted surface contamination area. The RWP defines anticontamination clothing requirements for access to this area. RWP requirements are mandatory.

Fall Hazards. The absence of guardrails on the building's flat roofs presents a potential fall hazard. The roof structures are in fair condition; however, visual inspection of the roof surface may not always indicate structural integrity. All roof access requires specific safety evaluations and written authorization.

Confined Spaces. The basin area is a confined space and should not be entered without specific approval. Confined spaces shall only be entered after following the prescribed actions listed in *Industrial Safety Manual*, WHC-CM-4-3, Section W-13.

Energy Sources. The facility is powered by a 120/240 VAC circuit. All electrical lines should be considered to be energized until proven otherwise.

Asbestos. Piping, electrical wire insulation, and ventilation components are insulated with asbestos-containing materials, and transite is used in certain structural components. Normally, asbestos is maintained in a nonfriable condition. However, the asbestos-containing material is subject to deterioration, and friable asbestos may be encountered.

212-N, 212-P AND 212-R STORAGE BUILDINGS

7.0 HAZARDS IDENTIFIED (Continued)

212-P Storage Building

Animals and Insects. The facility is subject to periodic animal intrusion, most commonly by birds or mice, although larger animals could be encountered. Animal feces should be avoided because it is a health hazard and may be radiologically contaminated. Spiders are common throughout the facility.

Chemicals. The loadout area is used for storage of PCB-containing oil. Electric Utilities operates a transformer cleaning and oil recovery station at this location.

212-R Storage Building

Radiological Hazards. There were very few operations at the facility, and the level of radioactive contamination is very low.

Surface Contamination Areas. The fuel storage basin transfer bay and outside area adjacent to the transfer bay are posted surface contamination areas. The Radiation Work Permit (RWP) defines anticontamination clothing requirements for access to this area. RWP requirements are mandatory.

Fall Hazards. The absence of guardrails on the building's flat roofs presents a potential fall hazard. The roof structure is in fair condition; however, visual inspection of the roof surface may not always indicate structural integrity. All roof access requires specific safety evaluations and written authorization.

Energy Sources. The facility has no electrical power.

Asbestos. Piping, electrical wire insulation, and ventilation components are insulated with asbestos-containing materials, and transite is used in certain structural components. Normally, asbestos is maintained in a nonfriable condition. However, the asbestos-containing material is subject to deterioration, and friable asbestos may be encountered.

Animals and Insects. The building is subject to animal intrusion, most commonly by birds or mice, although larger animals could be encountered. Animal feces should be avoided because it is a health hazard and may be radiologically contaminated. Spiders are common throughout the facility.

212-N STORAGE BUILDING

212-P STORAGE BUILDINGS

212-R STORAGE BUILDINGS

202-S REDOX AND CANYON BUILDING

1.0 LOCATION

The 202-S REDOX and Canyon Building is located in the 200 West Area. The coordinates are N35500 and W74000.

2.0 PURPOSE/HISTORY

The 202-S Building was in service from 1952 to 1967. This building contains all of the equipment for the dissolution, separation, and decontamination of uranium and plutonium, as well as the equipment for waste concentration, waste neutralization, and solvent recovery.

3.0 DESCRIPTION/DIMENSIONS

The REDOX Processing Building is 145 m (467 ft) by 49 m (161 ft). From a process viewpoint, the building is divided into a canyon and a silo area. The canyon consists of nine process cells arranged in two parallel rows running east-west, separated by a pipe tunnel. The north and south faces have 2-m (5-ft)-thick concrete shielding walls. The cells are separated from the pipe gallery by 46-cm (1.5-ft)-thick concrete walls. Process cells are separated by 1-m (4.5-ft)-thick concrete walls.

The silo, located on the west end of the building, is 24 m (83.5 ft) long, 13 m (41 ft) wide, and 40 m (131.8 ft) high, and contains a process area and an operating area. The column shaft is 4 m (11.5 ft) wide, 21 m (69 ft) long, and 26 m (85.8 ft) high. The east, west, and south walls are 1 m (3.5-ft)-thick concrete. The north wall is 46 cm (1.5 ft). There are eight levels in the operating area of the silo. The first five levels are used for chemical make-up. The sixth level is occupied by the silo crane. The seventh level consists of the operating gallery, which has a floor area of 198 m² (2,133 ft²), and the silo sample gallery, with a floor area of 82 m² (880 ft²). The total area of the eighth level equipment area is 174 m² (1,874 ft²).

The building galleries consist of the South Gallery, the North Operating Gallery, the Pipe Gallery, and the Sample Gallery. The South Gallery is 4 m (12.7 ft) wide, and the floor area is 372 m² (4,000 ft²). The North Operating Gallery measures 6 m (18 ft) wide, and the floor area is 520 m² (5,600 ft²). The Pipe Gallery is 6 m (18 ft) wide, and the floor area is 520 m² (5,600 ft²). The Sample Gallery is 6 m (19.3 ft) wide, and the floor area is 557 m² (6,000 ft²). The total area of the galleries is 9,969 m² (107,312 ft²). There are two 13.8-KVA feeder links in addition to 31 cm (12 in.) of raw water lines and 31 cm (12 in.) of sanitary water lines.

Visual inspection of the building's exterior revealed corrosion and minor spalling of the walls just below the roof.

202-S REDOX AND CANYON BUILDING**4.0 REFERENCE**

Photograph: 93070619-162CN

Drawings: H-2-7419, H-2-7420

5.0 UTILITIES AND SAFETY SYSTEMS

Intrusion Alarm	Yes []	No [x]	Unknown []
Heat	Yes [x]	No []	Unknown []
Ventilation	Yes [x]	No []	Unknown []
Air Conditioning	Yes [x]	No []	Unknown []
Electricity	Yes [x]	No []	Unknown []
Fire Detection	Yes []	No []	Unknown [x]
Fire Suppression	Yes [x]	No []	Unknown []
Compressed Air	Yes [x]	No []	Unknown []
Vacuum Air	Yes [x]	No []	Unknown []
Breathing Air	Yes []	No [x]	Unknown []
Water	Yes [x]	No []	Unknown []
Drain	Yes [x]	No []	Unknown []
Emergency Shower	Yes [x]	No []	Unknown []
Exclusion Fence	Yes []	No [x]	Unknown []
Air Sampling	Yes [x]	No []	Unknown []

6.0 BUILDING PHYSICAL STATUS

Interior Condition:	Fair
Exterior Condition:	Poor
Roof Condition:	Poor
Operational Equipment:	Not applicable
Radiological Products:	To be determined
Chemical Products:	To be determined

7.0 HAZARDS IDENTIFIED**Radiological Hazards**

The 202-S Canyon Building is a radiologically controlled area and a limited control facility. Radioactive contamination is essentially from fission products separated from plutonium, americium, and uranium during the chemical separation process. Routine entry and exit requirements are identified in the Radiation Work Permit (RWP), which is posted at the facility entrance. Nonroutine activities require a special RWP be prepared. RWP requirements are mandatory.

202-S REDOX AND CANYON BUILDING

7.0 HAZARDS IDENTIFIED (Continued)

High Radiation Areas

The canyon of the 202-S Building is a high radiation area, as well as an airborne radiation area. The canyon may only be entered with written authorization from the building administrator and under the control of a special RWP written for that entry.

Airborne Radiation Areas

The north, south, and silo sample galleries, the silo crane level, and the canyon are posted as airborne radiation areas. Access to the canyon and silo areas is prohibited. Access to the sample gallery is controlled by special RWP and requires constant HPT coverage and respiratory protection.

Surface Contamination Areas

There are a number of posted surface contamination areas in the 202-S Building. Specific posted surface contamination areas include the sample galleries, the fifth floor of the silo, the canyon, the storage gallery, and the south operating gallery. The RWP defines anticontamination clothing requirements for access to these areas.

Industrial Hazards

The 202-S Building is an inactive facility and is entered on a monthly surveillance basis. The pipe galleries, office areas, and north operating gallery are reasonably free of other hazards. Other areas of the facility are entered less frequently. Additional caution and preplanning are warranted when entering these areas.

Fall Hazards

The absence of guardrails on the building's multiple flat roofs presents a potential fall hazard. The roof surface will not always indicate structural integrity, and some cracked roofing panels have been noted. All access to roof structures requires a specific safety review.

Stairs, handrails, and guardrails in and around the facility stairs and subgrade structures are old and, in some cases, deteriorated.

Numerous pieces of equipment have been removed from the facility. This has created many tripping hazards, either from equipment foundations or from mounting bolts protruding from walking surfaces.

Equipment removal also has resulted in some openings in tanks. The unprotected openings in some of these tanks could present a fall hazard.

202-S REDOX AND CANYON BUILDING

7.0 HAZARDS IDENTIFIED (Continued)

Confined Spaces

There are numerous unmarked confined spaces under concrete and steel cover blocks and pipe chases and in access passageways and valve pits around the building. Confined spaces shall only be entered after following the prescribed actions listed in *Industrial Safety Manual*, WHC-CM-4-3, Section W-3.

Energy Sources

The facility is powered by a two-line, 18.8-kV electrical feed with stepdown transformers for equipment and, ultimately, a lighting distribution system. The switchgear is aged and must be operated with extra caution. Written authorization and work instructions are required for all 480-Volt and greater switchgear operations. All electrical lines should be considered energized until proven otherwise.

There are missing conduit closures, light bulbs, and fixture covers on items that may contain energized wires, some of which may be bare. Do not touch any electrical wiring or transfer equipment unless specifically addressed in an assigned work package.

Openings in electrical and instrumentation cabinets may contain energized stabs and must be avoided until covered or removed.

The south wall of the office area near the main entrance has rotated away from the adjacent structure. This rotation has caused the roof support in this area to become questionable and lose its load-carrying capacity. The roof section has been shored temporarily, and there is no unauthorized entrance into that portion of the building.

Hygiene Hazards

Asbestos. Piping, electrical wire insulation, and ventilation components are insulated with asbestos-containing materials, and transite is used in certain structural components. Normally, asbestos is maintained in a nonfriable condition. However, the asbestos-containing material is subject to deterioration, and friable asbestos may be encountered. Any cracks or holes in the transite siding may provide an avenue for this material to become friable and shall be avoided.

Foul Odor/Sewer Gas. Many of the restroom facilities in the building are no longer in service. Foul odors and sewer gas are possible in these areas if the traps are allowed to dry out.

Animals and Insects. The facility is subject to periodic animal intrusion, most commonly birds or mice, although larger animals could be encountered. Animal feces should be avoided as it is a health hazard and may be radiologically contaminated. Spiders are common throughout the facility.

202-S REDOX AND CANYON BUILDING

7.0 HAZARDS IDENTIFIED (Continued)

Chemicals. Oils, paints, lead, solvents, and spray cans have been found in the building recently. These items are stored in Rooms 117A, B, C, and D, and have been or will be removed for proper disposal. This emphasizes the fact that the potential remains for discovering old containers in any surplus facility. If chemicals or containers are found, they must not be disturbed and the building administrator shall be notified.

This chemical processing facility has used a great deal of hexone and other chemical solutions to process irradiated fuel elements. Although facility deactivation removed bulk materials and flushed systems, residual materials remain that should be avoided unless workers are actively involved in removing this material and are using written instructions. Residual chemicals can be found in pipe flanges and drains and pump/valve glands.

Numerous manom still contain acetylene tetrabromide or mercury as the operating medium. Shielded windows are suspected of containing polychlorinated biphenyl (PCB) oil. Care must be taken not to disturb any of this material unless workers are actively involved in removing this material, and are using written instructions.

202-S REDOX AND CANYON BUILDING

233-S PLUTONIUM CONCENTRATION FACILITY

1.0 LOCATION

The 233-S Plutonium Concentration Facility is located in the 200 West Area. The coordinates are N34500, W74100.

2.0 PURPOSE/HISTORY

Prior to 1963, the 233-S Plutonium Concentration Facility provided final purification and concentration of plutonium solutions using an ion-exchange process. In November 1963, a chemical reaction in the exchange column resulted in a fire that spread plutonium contamination to the equipment used in this process and throughout most of the building. Parts of the building were cleaned of gross contamination, and nonsmearable alpha contamination was fixed using a sealant paint. The facility was then used for concentration (by evaporation) of plutonium and neptunium nitrate solutions from REDOX. In 1967, the building was sealed off and retired from service, although some experiments have been conducted in the can storage room since.

In 1978, the 233-S Building was selected as a demonstration project for dismantlement of retired contaminated facilities. The dismantlement effort continued through 1980.

3.0 DESCRIPTION/DIMENSIONS

The 233-S Plutonium Concentration Facility is a reinforced concrete and corrugated metal structure. The dimensions are 26 m (85 ft 10 in.) by 11 m (36.8 ft). It consists of eight rooms, plus an air lock and a four-story 10-m (32-ft) high-bay area, divided into two zones (a process area and a process viewing area) by a vertical partition of transparent plastic panels reinforced with structural steel.

The viewing room is a maintenance and process viewing area with four working levels. The top three floors have open-grate flooring. Access to these working levels is provided through a sheetmetal-enclosed stairwell adjoining the exterior high-bay walls. The process hood, which was designed for contact maintenance, contains stainless steel, titanium, and glass process equipment.

4.0 REFERENCE

Photograph: 93070619-168CN

Drawings: H-2-30464

233-S PLUTONIUM CONCENTRATION FACILITY

5.0 UTILITIES AND SAFETY SYSTEMS

Intrusion Alarm	Yes []	No [x]	Unknown []
Heat	Yes [x]	No []	Unknown []
Ventilation	Yes [x]	No []	Unknown []
Air Conditioning	Yes [x]	No []	Unknown []
Electricity	Yes [x]	No []	Unknown []
Fire Detection	Yes [x]	No []	Unknown []
Fire Suppression	Yes [x]	No []	Unknown []
Compressed Air	Yes []	No [x]	Unknown []
Vacuum Air	Yes []	No [x]	Unknown []
Breathing Air	Yes []	No [x]	Unknown []
Water	Yes [x]	No []	Unknown []
Drain	Yes [x]	No []	Unknown []
Emergency Shower	Yes [x]	No []	Unknown []
Exclusion Fence	Yes []	No [x]	Unknown []
Air Sampling	Yes [x]	No []	Unknown []

6.0 BUILDING PHYSICAL STATUS

Interior Condition:	Fair
Exterior Condition:	Poor
Roof Condition:	Poor
Operational Equipment:	Not applicable
Radiological Products:	To be determined
Chemical Products:	To be determined

7.0 HAZARDS IDENTIFIED

Radiological Hazards

The 233-S Facility is a radiologically controlled area and a limited control facility. Radioactive contamination is primarily fission products, such as plutonium and americium, from plutonium processing operations. Routine entry and exit requirements are identified in the Radiation Work Permit (RWP), that is posted at the facility entrance. Nonroutine activities require a special RWP be prepared. RWP requirements are mandatory.

Airborne Radiation Areas

The process portion of the facility is posted as an airborne radiation area and requires respiratory protection must be worn in order to enter. The exact areas and protection levels are specified by the RWP.

Surface Contamination Areas

All of the facility beyond the change room and control room, including the roof, are posted as surface contamination areas. The RWP defines anticontamination clothing requirements for access to these areas.

233-S PLUTONIUM CONCENTRATION FACILITY - CONTINUED

7.0 HAZARDS IDENTIFIED (Continued)

Industrial Hazards

Fall Hazards. The absence of guardrails on the building's flat roofs presents a potential fall hazard. The roof structures are in fair condition. However, visual inspection of the roof surface may not always indicate structural integrity. All access to the roofs requires specific safety evaluations and written authorization.

Confined Spaces. Confined spaces shall only be entered after following the prescribed actions listed in *Industrial Safety Manual*, WHC-CM-4-3, Section W-13.

Energy Sources. The facility is powered by two 480-VAC systems. Most of the switchgear is deactivated. The switchgear is aged and must be operated with extra caution. All electrical lines should be considered to be energized until proven otherwise.

Hygiene Hazards

Asbestos. Piping, electrical wire insulation, and ventilation components are insulated with asbestos-containing materials, and transite is used in certain structural components. Normally, asbestos is maintained in a nonfriable condition. However, the asbestos-containing material is subject to deterioration, and friable asbestos may be encountered.

Chemicals. This facility was part of a chemical processing facility that used chemical solutions to process fuel. Although the facility deactivation removed bulk materials and flushed systems, residual materials remain that should be avoided unless workers are actively involved in removing this material using written instructions. Residual chemicals can be found at pipe flanges and drains and pump/valve glands.

233-S PLUTONIUM CONCENTRATION FACILITY

296-S-1 STACK**1.0 LOCATION**

The 296-S-1 Stack is located in the 200 West Area. The coordinates are N34700, W73700.

2.0 PURPOSE/HISTORY

The 296-S-1 Stack was built in 1950 to discharge filtered air from the south sample gallery and sample hoods of the 202-S Building.

3.0 DESCRIPTION/DIMENSIONS

The 296-S-1 Stack is attached to the outside south wall of the service portion of the south pipe gallery at the 202-S Building. The metal stack is 36 cm (14 in.) in diameter and approximately 20 m (64 ft) in length from the fan base, grade level, to 2 m (6 ft) above the roof.

4.0 REFERENCE

Photograph: 93070619-163CN

Drawing: H-2-7561

5.0 UTILITIES AND SAFETY SYSTEMS

Intrusion Alarm	Yes []	No [x]	Unknown []
Heat	Yes []	No [x]	Unknown []
Ventilation	Yes []	No [x]	Unknown []
Air Conditioning	Yes []	No [x]	Unknown []
Electricity	Yes []	No [x]	Unknown []
Fire Detection	Yes []	No [x]	Unknown []
Fire Suppression	Yes []	No [x]	Unknown []
Compressed Air	Yes []	No [x]	Unknown []
Vacuum Air	Yes []	No [x]	Unknown []
Breathing Air	Yes []	No [x]	Unknown []
Water	Yes []	No [x]	Unknown []
Drain	Yes []	No [x]	Unknown []
Emergency Shower	Yes []	No [x]	Unknown []
Exclusion Fence	Yes []	No [x]	Unknown []
Air Sampling	Yes [x]	No []	Unknown []

296-S-1 STACK

6.0 BUILDING PHYSICAL STATUS

Interior Condition:	To be determined
Exterior Condition:	To be determined
Roof Condition:	To be determined
Operational Equipment:	To be determined
Radiological Products:	To be determined
Chemical Products:	To be determined

7.0 HAZARDS IDENTIFIED

Because of the nature and age of the facilities, conditions and potential hazards will change periodically. Therefore, caution must be taken by all personnel entering the facility to ensure their personal safety.

In addition, the facility is subject to periodic vermin intrusion. Animal feces should be avoided as it is a health hazard and may be radiologically contaminated. Spiders, bull snakes, and rattlesnakes are common throughout the area and have been encountered in other facilities in the past.

296-S-1 STACK

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296-S-2 STACK**1.0 LOCATION**

The 296-S-2 Stack is located in the 200 West Area. The coordinates are N34900, W73900.

2.0 PURPOSE/HISTORY

The 296-S-2 Stack was built to discharge filtered air from the north sample gallery and sample hoods of the 202-S Building.

3.0 DESCRIPTION/DIMENSION

The 296-S-2 metal Stack is located on the outside north wall of 202-S Building. This stack is 36 cm (14 in.) in diameter and approximately 15 m (50 ft) high, extending from the sample gallery level to above the roof.

4.0 REFERENCE

Drawing: H-2-7490, H-2-5742

5.0 UTILITIES AND SAFETY SYSTEMS

Intrusion Alarm	Yes []	No [x]	Unknown []
Heat	Yes []	No [x]	Unknown []
Ventilation	Yes []	No [x]	Unknown []
Air Conditioning	Yes []	No [x]	Unknown []
Electricity	Yes []	No [x]	Unknown []
Fire Detection	Yes []	No [x]	Unknown []
Fire Suppression	Yes []	No [x]	Unknown []
Compressed Air	Yes []	No [x]	Unknown []
Vacuum Air	Yes []	No [x]	Unknown []
Breathing Air	Yes []	No [x]	Unknown []
Water	Yes []	No [x]	Unknown []
Drain	Yes []	No [x]	Unknown []
Emergency Showe	Yes []	No [x]	Unknown []
Exclusion Fence	Yes []	No [x]	Unknown []
Air Sampling	Yes [x]	No []	Unknown []

6.0 BUILDING PHYSICAL STATUS

Interior Condition:	To be determined
Exterior Condition:	To be determined
Roof Condition:	To be determined
Operational Equipment:	To be determined
Radiological Products:	To be determined
Chemical Products:	To be determined

296-S-2 STACK

7.0 HAZARDS IDENTIFIED

Because of the nature and age of the facilities, conditions and potential hazards will change periodically. Therefore, caution must be taken by all personnel entering the facility to ensure their personal safety.

In addition, the facility is subject to periodic vermin intrusion. Animal feces should be avoided as it is a health hazard and may be radiologically contaminated. Spiders, bull snakes, and rattlesnakes are common throughout the area and have been encountered in other facilities in the past.

296-S-4 STACK

1.0 LOCATION

The 296-S-4 Stack is located in the 200 West Area. The coordinates are N34400, W73600.

2.0 PURPOSE/HISTORY

The 294-S-4 Stack was built to discharge filtered air from the decontamination room and regulated shop, and discharge unfiltered air from the regulated tool room, low level decontamination sink, and anti-contamination clothing change room.

3.0 DESCRIPTION/DIMENSIONS

The 296-S-4 metal Stack is located on the east outside wall of the 202-S Building. The stack is 46 cm (18 in.) in diameter and 15 m (48 ft) high, extending from the fan base, at grade level, to 2 m (6 ft) above the roof of the 202-S Building.

4.0 REFERENCE

Drawing: H-2-7596, H-2-7892

5.0 UTILITIES AND SAFETY SYSTEMS

Intrusion Alarm	Yes []	No [x]	Unknown []
Heat	Yes []	No [x]	Unknown []
Ventilation	Yes []	No [x]	Unknown []
Air Conditioning	Yes []	No [x]	Unknown []
Electricity	Yes []	No [x]	Unknown []
Fire Detection	Yes []	No [x]	Unknown []
Fire Suppression	Yes []	No [x]	Unknown []
Compressed Air	Yes []	No [x]	Unknown []
Vacuum Air	Yes []	No [x]	Unknown []
Breathing Air	Yes []	No [x]	Unknown []
Water	Yes []	No [x]	Unknown []
Drain	Yes []	No [x]	Unknown []
Emergency Showe	Yes []	No [x]	Unknown []
Exclusion Fence	Yes []	No [x]	Unknown []
Air Sampling	Yes [x]	No []	Unknown []

296-S-4 STACK

6.0 BUILDING PHYSICAL STATUS

Interior Condition:	To be determined
Exterior Condition:	To be determined
Roof Condition:	To be determined
Operational Equipment:	To be determined
Radiological Products:	To be determined
Chemical Products:	To be determined

7.0 HAZARDS IDENTIFIED

Because of the nature and age of the facilities, conditions and potential hazards will change periodically. Therefore, caution must be taken by all personnel entering the facility to ensure their personal safety.

In addition, the facility is subject to periodic vermin intrusion. Animal feces should be avoided as it is a health hazard and may be radiologically contaminated. Spiders, bull snakes, and rattlesnakes are common throughout the area and have been encountered in other facilities in the past.

296-S-6 STACK**1.0 LOCATION**

The 296-S-6 Stack is located in the 200 West Area. The coordinates are N34500, W74100.

2.0 PURPOSE/HISTORY

The 296-S-6 Stack was built to discharge unfiltered air from the silo gallery, organic feed tank, and sample elevator.

3.0 DESCRIPTION/DIMENSIONS

The 296-S-6 metal stack is located on the roof in the northeast corner of the 202-S Building. The stack is approximately 76 cm (30 in.) in diameter and extends from the fan base, in the feed tank area, to a height of 4 m (11 ft 6 in.) above the roof.

4.0 REFERENCE

Drawing: H-2-7581

5.0 UTILITIES AND SAFETY SYSTEMS

Intrusion Alarm	Yes []	No [x]	Unknown []
Heat	Yes []	No [x]	Unknown []
Ventilation	Yes []	No [x]	Unknown []
Air Conditioning	Yes []	No [x]	Unknown []
Electricity	Yes []	No [x]	Unknown []
Fire Detection	Yes []	No [x]	Unknown []
Fire Suppression	Yes []	No [x]	Unknown []
Compressed Air	Yes []	No [x]	Unknown []
Vacuum Air	Yes []	No [x]	Unknown []
Breathing Air	Yes []	No [x]	Unknown []
Water	Yes []	No [x]	Unknown []
Drain	Yes []	No [x]	Unknown []
Emergency Shower	Yes []	No [x]	Unknown []
Exclusion Fence	Yes []	No [x]	Unknown []
Air Sampling	Yes [x]	No []	Unknown []

296-S-6 STACK

6.0 BUILDING PHYSICAL STATUS

Interior Condition:	To be determined
Exterior Condition:	To be determined
Roof Condition:	To be determined
Operational Equipment:	To be determined
Radiological Products:	To be determined
Chemical Products:	To be determined

7.0 HAZARDS IDENTIFIED

Because of the nature and age of the facilities, conditions and potential hazards will change periodically. Therefore, caution must be taken by all personnel entering the facility to ensure their personal safety.

In addition, the facility is subject to periodic vermin intrusion. Animal feces should be avoided as it is a health hazard and may be radiologically contaminated. Spiders, bull snakes, and rattlesnakes are common throughout the area and have been encountered in other facilities in the past.

296-S-7 EAST AND WEST STACKS**1.0 LOCATION**

The 296-S-7 East and West Stacks are located in the 200 West Area. The coordinates are N34600, W74000.

2.0 PURPOSE/HISTORY

The 296-S-7 East and West Stacks were constructed to provide exhaust to the 233-S Building. The systems run one at a time and are alternated weekly.

3.0 DESCRIPTION/DIMENSIONS

The 296-S-7 metal stacks are located on the outside north wall of 233-SA. Each stack is 61 cm (24 in.) in diameter and approximately 8 m (25 ft) high, extending from the fan base to above roof level.

4.0 REFERENCE

Drawing: H-2-17900, H-2-17905

5.0 UTILITIES AND SAFETY SYSTEMS

Intrusion Alarm	Yes []	No [x]	Unknown []
Heat	Yes []	No [x]	Unknown []
Ventilation	Yes []	No [x]	Unknown []
Air Conditioning	Yes []	No [x]	Unknown []
Electricity	Yes []	No [x]	Unknown []
Fire Detection	Yes []	No [x]	Unknown []
Fire Suppression	Yes []	No [x]	Unknown []
Compressed Air	Yes []	No [x]	Unknown []
Vacuum Air	Yes []	No [x]	Unknown []
Breathing Air	Yes []	No [x]	Unknown []
Water	Yes []	No [x]	Unknown []
Drain	Yes []	No [x]	Unknown []
Emergency Shower	Yes []	No [x]	Unknown []
Exclusion Fence	Yes [x]	No []	Unknown []
Air Sampling	Yes [x]	No []	Unknown []

6.0 BUILDING PHYSICAL STATUS

Interior Condition:	To be determined
Exterior Condition:	To be determined
Roof Condition:	To be determined
Operational Equipment:	To be determined
Radiological Products:	To be determined
Chemical Products:	To be determined

296-S-7 EAST AND WEST STACKS

7.0 HAZARDS IDENTIFIED

Because of the nature and age of the facilities, conditions and potential hazards will change periodically. Therefore, caution must be taken by all personnel entering the facility to ensure their personal safety.

In addition, the facility is subject to periodic vermin intrusion. Animal feces should be avoided as it is a health hazard and may be radiologically contaminated. Spiders, bull snakes, and rattlesnakes are common throughout the area and have been encountered in other facilities in the past.

296-S-12 STACKS (2)**1.0 LOCATION**

The 296-S-12 Stacks are located in the 200 West Area. The coordinates are N34600, W74300.

2.0 PURPOSE/HISTORY

The 296-S-12 Stacks were originally built to discharge exhaust from the 276-S Operating Gallery.

3.0 DESCRIPTION/DIMENSIONS

The 296-S-12 Stacks are located on the roof of the 276-S Building over the operation gallery. The two stacks are identical. Each is 6 m (21 ft) square and 3 m (10.5 ft) high.

4.0 REFERENCE

Drawing: H-2-5298

5.0 UTILITIES AND SAFETY SYSTEMS

Intrusion Alarm	Yes []	No [x]	Unknown []
Heat	Yes []	No [x]	Unknown []
Ventilation	Yes []	No [x]	Unknown []
Air Conditioning	Yes []	No [x]	Unknown []
Electricity	Yes []	No [x]	Unknown []
Fire Detection	Yes []	No [x]	Unknown []
Fire Suppression	Yes []	No [x]	Unknown []
Compressed Air	Yes []	No [x]	Unknown []
Vacuum Air	Yes []	No [x]	Unknown []
Breathing Air	Yes []	No [x]	Unknown []
Water	Yes []	No [x]	Unknown []
Drain	Yes []	No [x]	Unknown []
Emergency Shower	Yes []	No [x]	Unknown []
Exclusion Fence	Yes [x]	No []	Unknown []
Air Sampling	Yes [x]	No [x]	Unknown []

6.0 BUILDING PHYSICAL STATUS

Interior Condition:	To be determined
Exterior Condition:	To be determined
Roof Condition:	To be determined
Operational Equipment:	To be determined
Radiological Products:	To be determined
Chemical Products:	To be determined

296-S-12 STACKS (2)

7.0 HAZARDS IDENTIFIED

Because of the nature and age of the facilities, conditions and potential hazards will change periodically. Therefore, caution must be taken by all personnel entering the facility to ensure their personal safety.

In addition, the facility is subject to periodic vermin intrusion. Animal feces should be avoided as it is a health hazard and may be radiologically contaminated. Spiders, bull snakes, and rattlesnakes are common throughout the area and have been encountered in other facilities in the past.

233-SA EXHAUST FILTER BUILDING**1.0 LOCATION**

The 233-SA Exhaust Filter Building is located in the 200 West Area. The coordinates are N34500, W74100.

2.0 PURPOSE/HISTORY

The 233-SA Filter Building was built adjacent to the 233-S in 1967 to handle ventilation for the 233-S Facility.

3.0 DESCRIPTION/DIMENSIONS

The 233-SA Building is a one-story, reinforced, concrete structure. The outside dimensions are 7 m (24 ft) by 8 m (27 ft) by 3 m (8.5 ft) high. The building houses two banks of double high efficiency particulate air (HEPA) filters; each with its own exhaust fan, stack, and radiation monitoring instrumentation.

4.0 REFERENCE

Photograph: 93070619-170CN

Drawings: H-2-45490

5.0 UTILITIES AND SAFETY SYSTEMS

Intrusion Alarm	Yes []	No [x]	Unknown []
Heat	Yes [x]	No []	Unknown []
Ventilation	Yes []	No []	Unknown [x]
Air Conditioning	Yes []	No []	Unknown [x]
Electricity	Yes [x]	No []	Unknown []
Fire Detection	Yes [x]	No []	Unknown []
Fire Suppression	Yes []	No [x]	Unknown []
Compressed Air	Yes []	No [x]	Unknown []
Vacuum Air	Yes []	No [x]	Unknown []
Breathing Air	Yes []	No [x]	Unknown []
Water	Yes []	No [x]	Unknown []
Drain	Yes [x]	No []	Unknown []
Emergency Shower	Yes []	No [x]	Unknown []
Exclusion Fence	Yes []	No [x]	Unknown []
Air Sampling	Yes [x]	No []	Unknown []

233-SA EXHAUST FILTER BUILDING

6.0 BUILDING PHYSICAL STATUS

Interior Condition:	To be determined
Exterior Condition:	To be determined
Roof Condition:	To be determined
Operational Equipment:	To be determined
Radiological Products:	To be determined
Chemical Products:	To be determined

7.0 HAZARDS IDENTIFIED

Radiological Hazards

The 233-SA Facility is a radiologically controlled area and a limited control facility. Radioactive contamination is primarily fission products, plutonium and americium from plutonium processing operations. Routine entry and exit requirements are identified in the Radiation Work Permit (RWP), which is posted at the facility entrance. Nonroutine activities require a special RWP be prepared. RWP requirements are mandatory.

Airborne Radiation Areas

The process portion of the facility is posted as an airborne radiation area and requires respiratory protection to enter. The exact areas and protection levels shall be specified by the RWP.

Surface Contamination Areas

All of the facility beyond the change room and control room, including the roof, are posted as a surface contamination area. The RWP defines anticontamination clothing requirements for access to these areas.

Industrial Hazards

Fall Hazards. The absence of guard rails on the building's flat roofs presents a potential fall hazard. The roof structures are in fair condition. However, visual inspection of the roof surface may not always indicate structural integrity. All access to the roofs requires specific safety evaluations and written authorization.

Confined Spaces. Confined spaces shall only be entered after following the prescribed actions listed in *Industrial Safety Manual*, WHC-CM-4-3, Section W-13.

Energy Sources. The facility is powered by two 480-VAC systems. Most of the switchgear is deactivated. The switchgear is aged and must be operated with extra caution. All electrical lines should be considered to be energized until proven otherwise.

233-SA EXHAUST FILTER BUILDING

7.0 HAZARDS IDENTIFIED (Continued)

Hygiene Hazards

Asbestos. Piping, electrical wire insulation, and ventilation components are insulated with asbestos-containing materials, and transite is used in certain structural components. Normally, asbestos is maintained in a nonfriable condition. However, the asbestos-containing material is subject to deterioration, and friable asbestos may be encountered.

Chemicals. This facility was part of a chemical processing facility that used chemical solutions to process fuel. While the facility deactivation removed bulk materials and flushed systems, residual materials remain that should be avoided unless actively involved in removing this material using written instructions. Examples of chemical residue occur at pipe flanges and drains and pump/valve glands.

233-SA EXHAUST FILTER BUILDING

276-S SOLVENT HANDLING FACILITY

1.0 LOCATION

The 276-S Solvent Handling Facility is located in the 200 West Area. The coordinates are N34600, W74200.

2.0 PURPOSE/HISTORY

The 276-S Solvent Handling Building was in service from 1952 to 1967 and provided chemical treatment of REDOX process solvent (hexone). Solvent Storage Tanks 276-S-141 and 276-S-142 are used in conjunction with this facility.

3.0 DESCRIPTION/DIMENSIONS

The 276-S Solvent Handling Building, which is 18 m (58 ft) by 13 m (42 ft) has reinforced concrete walls, steel framing, and corrugated asbestos walls.

The building is divided into two sections that are separated by a 0.6-m (2-ft)-thick concrete wall. The Process Area is 17 m (58 ft) by 8 m (26 ft), with 0.6-m (2-ft)-thick concrete walls on the ends and the side next to the operating area. The other end is covered with corrugated asbestos siding. There are three tanks in this area. The Operating Area is made of 18 m (58 ft) by 5 m (15 ft) steel framework covered with corrugated asbestos siding. There are no connecting doors to the process area because all the doors open to the outside. There is one tank in this area.

4.0 REFERENCE

Photograph: 93070619-168CN

Drawings: H-2-5368

276-S SOLVENT HANDLING FACILITY

5.0 UTILITIES AND SAFETY SYSTEMS

Intrusion Alarm	Yes []	No [x]	Unknown []
Heat	Yes [x]	No []	Unknown []
Ventilation	Yes []	No [x]	Unknown []
Air Conditioning	Yes []	No [x]	Unknown []
Electricity	Yes []	No [x]	Unknown []
Fire Detection	Yes []	No [x]	Unknown []
Fire Suppression	Yes []	No [x]	Unknown []
Compressed Air	Yes []	No [x]	Unknown []
Vacuum Air	Yes []	No [x]	Unknown []
Breathing Air	Yes []	No [x]	Unknown []
Water	Yes []	No [x]	Unknown []
Drain	Yes []	No [x]	Unknown []
Emergency Shower	Yes []	No [x]	Unknown []
Exclusion Fence	Yes []	No [x]	Unknown []
Air Sampling	Yes []	No [x]	Unknown []

6.0 BUILDING PHYSICAL STATUS

Interior Condition:	Fair
Exterior Condition:	Poor
Roof Condition:	Poor
Operational Equipment:	Not applicable
Radiological Products:	To be determined
Chemical Products:	To be determined

7.0 HAZARDS IDENTIFIED

Hygiene Hazards

Asbestos. Piping, electrical wire insulation, and ventilation components are insulated with asbestos-containing materials, and transite is used in certain structural components. Normally, asbestos is maintained in a nonfriable condition. However, the asbestos-containing material is subject to deterioration, and friable asbestos may be encountered.

Energy Sources

Written authorization and work instructions are required for all 480-volt and greater switchgear operations. All electrical lines should be considered energized until proven otherwise. There are missing conduit closures, light bulbs, and fixture covers on items that may contain energized wires, some of which may be bare. Do not touch any electrical wiring or transfer equipment unless specifically addressed in an assigned work package. Openings in electrical and instrumentation cabinets may contain energized stabs and must be avoided until covered or removed.

276-S SOLVENT HANDLING FACILITY

7.0 HAZARDS IDENTIFIED (Continued)

Energy Sources

This facility stored and processed large volumes of hexone during operations and was used to store radiological samples.

This building is isolated and should not be entered unless a specific safety appraisal is performed prior to entry. Visual inspection of the roof surface will not always indicate structural integrity, and some cracked roofing panels have been noted. All access to roof structures requires specific safety evaluations and written authorization from the facility manager.

Because of the nature and age of the facilities, conditions and potential hazards will change periodically. Therefore, caution must be taken by all personnel entering the facility to ensure their personal safety.

In addition, the facility is subject to periodic vermin intrusion. Animal feces should be avoided as it is a health hazard and may be radiologically contaminated. Spiders, bull snakes, and rattlesnakes are common throughout the area and have been encountered in other facilities in the past.

276-S SOLVENT HANDLING FACILITY

291-S, 291-S-1 FAN HOUSE, SAND FILTER, AND STACK

1.0 LOCATION

The 291-S, 291-S-1 Fan House is located in the 200 West Area. The coordinates are N34600, W73400.

2.0 PURPOSE/HISTORY

The 291-S Complex was built in 1952 to provide ventilation exhaust for the REDOX Plant (202-S).

3.0 DESCRIPTION/DIMENSIONS

The 291-S Complex consists of a sand filter, fan house (291-S), exhaust fan, and stack (291-S-1).

The sand filter is a belowgrade concrete structure with 0.3-m (1-ft)-thick walls and roof. Outside dimensions are approximately 26 m by 26 m (85 ft by 85 ft) by 4 m (12.5 ft) deep. Tar and gravel over the concrete roof is visible above grade.

Exhaust air leaves the process building (202-S) through the main exhaust duct and passes through the sand filter, the exhaust fans, and out the stack.

The 291-S Fan House is 20 m² (216 ft²) in area. The outside dimensions are 4 m (14 ft) by 6 m (20 ft) by 3 m (10.5 ft) high, with 0.3-m (1-ft)-thick concrete walls, a 25-cm (10-in.)-thick concrete roof and a 13-cm (5-in.)-thick concrete floor.

On the adjacent concrete fan platform, there are two electric motor driven blowers that each have a 6,100 m³ (20,000 ft³)/minute capacity. A third standby unit is powered by a direct coupled steam turbine.

The 291-S-1 Stack is 4 m (14 ft) in diameter at the base and 61 m (200 ft) high. It is a double steel structure; the outer shell is made of reinforced concrete, and the inner shell is made of acid-resistant brick and mortar.

4.0 REFERENCE

Photograph: 93070619-163CN

Drawings: H-2-8883, H-2-8865, H-2-5514, H-2-5517, and H-2-8866

291-S, 291-S-1 FAN HOUSE, SAND FILTER, AND STACK

5.0 UTILITIES AND SAFETY SYSTEMS

Intrusion Alarm	Yes	[]	No	[x]	Unknown	[]
Heat	Yes	[x]	No	[]	Unknown	[]
Ventilation	Yes	[]	No	[x]	Unknown	[]
Air Conditioning	Yes	[x]	No	[]	Unknown	[]
Electricity	Yes	[x]	No	[]	Unknown	[]
Fire Detection	Yes	[]	No	[x]	Unknown	[]
Fire Suppression	Yes	[x]	No	[]	Unknown	[]
Compressed Air	Yes	[]	No	[x]	Unknown	[]
Vacuum Air	Yes	[]	No	[x]	Unknown	[]
Breathing Air	Yes	[]	No	[x]	Unknown	[]
Water	Yes	[]	No	[x]	Unknown	[]
Drain	Yes	[]	No	[x]	Unknown	[]
Emergency Shower	Yes	[]	No	[x]	Unknown	[]
Exclusion Fence	Yes	[x]	No	[]	Unknown	[]
Air Sampling	Yes	[x]	No	[]	Unknown	[]

6.0 BUILDING PHYSICAL STATUS

Interior Condition:	Active
Exterior Condition:	Poor
Roof Condition:	Poor
Operational Equipment:	Not applicable
Radiological Products:	To be determined
Chemical Products:	To be determined

7.0 HAZARDS IDENTIFIED

These buildings support or have supported the operation of the REDOX ventilation and monitoring system. The primary hazards are auto-start equipment in the 291-S Building, oils and greases in and around the 291-S Building, and general asbestos concerns throughout the area.

These buildings are isolated and should not to be entered unless a specific safety appraisal is performed beforehand. Visual inspection of the roof surface will not always indicate structural integrity, and some cracked roofing panels have been noted. All access to roof structures requires specific safety evaluations and written authorization from the facility manager.

Because of the nature and age of the facilities, conditions and potential hazards will change periodically. Therefore, caution must be taken by all personnel entering the facility to ensure their personal safety.

In addition, these facilities are subject to periodic vermin intrusion. Animal feces should be avoided as it is a health hazard and may be radiologically contaminated. Spiders, bull snakes, and rattlesnakes are common throughout the area and have been encountered in other facilities in the past.

291-S, 291-S-1 FAN HOUSE, SAND FILTER AND STACK

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292-S JET PIT HOUSE**1.0 LOCATION**

The 292-S Jet Pit House is located in the 200 West Area. The coordinates are N34600, W73500.

2.0 PURPOSE/HISTORY

The 292-S Jet Pit House was in service from 1952 to 1967 to house the jets for the REDOX process vessel vent systems.

3.0 DESCRIPTION/DIMENSIONS

The 292-S Jet Pit House is a concrete building, and its outside dimensions are 5 m (15.7 ft) by 5 m (15.7 ft) by 3 m (10.5 ft) high.

4.0 REFERENCE

Drawings: H-2-8883

5.0 UTILITIES AND SAFETY SYSTEMS

Intrusion Alarm	Yes []	No [x]	Unknown []
Heat	Yes []	No []	Unknown [x]
Ventilation	Yes []	No []	Unknown [x]
Air Conditioning	Yes []	No []	Unknown [x]
Electricity	Yes [x]	No []	Unknown []
Fire Detection	Yes []	No [x]	Unknown []
Fire Suppression	Yes []	No [x]	Unknown []
Compressed Air	Yes []	No [x]	Unknown []
Vacuum Air	Yes []	No [x]	Unknown []
Breathing Air	Yes []	No [x]	Unknown []
Water	Yes []	No [x]	Unknown []
Drain	Yes []	No [x]	Unknown []
Emergency Shower	Yes []	No [x]	Unknown []
Exclusion Fence	Yes []	No [x]	Unknown []
Air Sampling	Yes []	No [x]	Unknown []

6.0 BUILDING PHYSICAL STATUS

Interior Condition:	Fair
Exterior Condition:	Poor
Roof Condition:	Poor
Operational Equipment:	Not applicable
Radiological Products:	To be determined
Chemical Products:	To be determined

292-S JET PIT HOUSE

7.0 HAZARDS IDENTIFIED

This building supports, or has supported, the operation of the REDOX ventilation and monitoring system. There are general asbestos concerns throughout the area.

This building is isolated and should not be entered unless a specific safety appraisal is performed prior to entry. Visual inspection of the roof surface will not always indicate structural integrity, and some cracked roofing panels have been noted. All access to roof structures requires specific safety evaluations and written authorization from the facility manager.

Because of the nature and age of the facilities, the conditions and potential hazards will change periodically. Therefore, caution must be taken by all personnel entering the facility to ensure their personal safety.

In addition, the facility is subject to periodic vermin intrusion. Animal feces should be avoided as it is a health hazard and may be radiologically contaminated. Spiders, bull snakes, and rattlesnakes are common throughout the area and have been encountered in other facilities in the past.

292-S JET PIT HOUSE

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293-S OFF-GAS TREATMENT AND RECOVERY BUILDING

1.0 LOCATION

The 293-S Off-Gas Treatment and Recovery Building is located in the 200 West Area. The coordinates are N34700, W73400.

2.0 PURPOSE/HISTORY

The 293-S Building was in service from 1958 through 1967 to provide absorption of nitrogen oxides and volatile fission products from the REDOX dissolver off-gas.

3.0 DESCRIPTION/DIMENSIONS

The 293-S Off-Gas Treatment Building is a reinforced concrete structure, with a corrugated metal lean-to portion attached to the south wall.

The concrete portion of the building is 9 m (29 ft) by 5 m (16 ft), and extends from 4 m (12 ft) below grade to 9 m (30 ft) above grade. The main floor contains the absorption towers, and the pipe valve pit is in the basement.

The dimensions of the lean-to structure are 3 m (8.5 ft) by 8.5 m (27.8 ft). The lean-to structure houses the control room and anti-contamination clothing change room; a concrete basement houses the control piping.

The underground acid storage area, which is 4 m (14 ft) by 4 m (13 ft), is adjacent to the main building's west side. Ventilation supply equipment is present above ground adjacent to the south end of the lean-to structure.

4.0 REFERENCE

Drawings: H-2-31048, H-2-31049

293-S OFF-GAS TREATMENT AND RECOVERY BUILDING**5.0 UTILITIES AND SAFETY SYSTEMS**

Intrusion Alarm	Yes []	No [x]	Unknown []
Heat	Yes [x]	No []	Unknown []
Ventilation	Yes [x]	No []	Unknown []
Air Conditioning	Yes [x]	No []	Unknown []
Electricity	Yes [x]	No []	Unknown []
Fire Detection	Yes []	No [x]	Unknown []
Fire Suppression	Yes [x]	No []	Unknown []
Compressed Air	Yes []	No [x]	Unknown []
Vacuum Air	Yes []	No [x]	Unknown []
Breathing Air	Yes []	No [x]	Unknown []
Water	Yes []	No [x]	Unknown []
Drain	Yes []	No [x]	Unknown []
Emergency Shower	Yes []	No [x]	Unknown []
Exclusion Fence	Yes []	No [x]	Unknown []
Air Sampling	Yes []	No []	Unknown [x]

6.0 BUILDING PHYSICAL STATUS

Interior Condition:	Fair
Exterior Condition:	Poor
Roof Condition:	Poor
Operational Equipment:	Not applicable
Radiological Products:	To be determined
Chemical Products:	To be determined

7.0 HAZARDS IDENTIFIED

This building supports, or has supported, the operation of the REDOX ventilation and monitoring system. There are general asbestos concerns throughout the area.

This building is isolated and should not be entered unless a specific safety appraisal is performed prior to entry. Visual inspection of the roof surface will not always indicate structural integrity, and some cracked roofing panels have been noted. All access to roof structures requires specific safety evaluations and written authorization from the facility manager.

Because of the nature and age of the facilities, conditions and potential hazards will change periodically. Therefore, caution must be taken by all personnel entering the facility to ensure their personal safety.

In addition, the facility is subject to periodic vermin intrusion. Animal feces should be avoided as it is a health hazard and may be radiologically contaminated. Spiders, bull snakes, and rattlesnakes are common throughout the area and have been encountered in other facilities in the past.

293-S OFF-GAS TREATMENT AND RECOVERY BUILDING

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2711-S STACK GAS MONITORING BUILDING**1.0 LOCATION**

The 2711-S Stack Gas Monitoring Building is located in the 200 West Area. The coordinates are N34600, W73400.

2.0 PURPOSE/HISTORY

The 2711-S Stack Gas Monitoring Building was built to sample gas from the 291-S-1 Stack and monitor contamination.

3.0 DESCRIPTION/DIMENSIONS

The 2711-S is a wooden stack gas monitoring sample shelter with a sloped roof. The dimensions are 4 m (12.5 ft) by 5 m (14.7 ft) high. The total floor area is 16.3 m² (175 ft²). The building contains motor, pump, and instrumentation for the 291-S-1 Stack Gas Sampling Building.

4.0 REFERENCE

Drawings: H-2-5517, H-2-5515

5.0 UTILITIES AND SAFETY SYSTEMS

Intrusion Alarm	Yes []	No [x]	Unknown []
Heat	Yes []	No []	Unknown [x]
Ventilation	Yes []	No []	Unknown [x]
Air Conditioning	Yes [x]	No []	Unknown []
Electricity	Yes []	No []	Unknown [x]
Fire Detection	Yes []	No [x]	Unknown []
Fire Suppression	Yes [x]	No []	Unknown []
Compressed Air	Yes []	No [x]	Unknown []
Vacuum Air	Yes []	No [x]	Unknown []
Breathing Air	Yes []	No [x]	Unknown []
Water	Yes []	No [x]	Unknown []
Drain	Yes []	No [x]	Unknown []
Emergency Shower	Yes []	No [x]	Unknown []
Exclusion Fence	Yes [x]	No []	Unknown []
Air Sampling	Yes []	No []	Unknown [x]

2711-S STACK GAS MONITORING BUILDING

6.0 BUILDING PHYSICAL STATUS

Interior Condition:	Fair
Exterior Condition:	Poor
Roof Condition:	Poor
Operational Equipment:	Not applicable
Radiological Products:	To be determined
Chemical Products:	To be determined

7.0 HAZARDS IDENTIFIED

This small wooden outbuilding was used for storage and for monitoring the ventilation system. Currently, it is being used for equipment and lead storage. The lead is to be removed in the near future. Following that, and until final building cleanout and demolition, this building should not be entered without the specific permission of the building administrator.

This building is isolated and should not be entered unless a specific safety appraisal is performed prior to entry. Visual inspection of the roof surface will not always indicate structural integrity, and some cracked roofing panels have been noted. All access to roof structures requires specific safety evaluations and written authorization from the facility manager.

Because of the nature and age of the facility, conditions and potential hazards will change periodically. Therefore, caution must be taken by all personnel entering the facility to ensure their personal safety.

In addition, the facility is subject to periodic vermin intrusion. Animal feces should be avoided as it is a health hazard and may be radiologically contaminated. Spiders, bull snakes, and rattlesnakes are common throughout the area and have been encountered in other facilities in the past.

2711-S STACK GAS MONITORING BUILDING

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2715-S OIL STORAGE FACILITY**1.0 LOCATION**

The 2715-S Oil Storage Facility is located in the 200 Area.

2.0 PURPOSE/HISTORY

No information is available at this time.

3.0 DESCRIPTION/DIMENSIONS

The total area of the 2715-S Oil Storage Facility is 15 m² (160 ft²).

4.0 REFERENCE

Not Available.

5.0 UTILITIES AND SAFETY SYSTEMS

Intrusion Alarm	Yes []	No [X]	Unknown []
Heat	Yes []	No [X]	Unknown []
Ventilation	Yes []	No [X]	Unknown []
Air Conditioning	Yes []	No [X]	Unknown []
Electricity	Yes [X]	No []	Unknown []
Fire Detection	Yes []	No [X]	Unknown []
Fire Suppression	Yes []	No [X]	Unknown []
Compressed Air	Yes []	No [X]	Unknown []
Vacuum Air	Yes []	No [X]	Unknown []
Breathing Air	Yes []	No [X]	Unknown []
Water	Yes []	No [X]	Unknown []
Drain	Yes []	No [X]	Unknown []
Emergency Shower	Yes []	No [X]	Unknown []
Exclusion Fence	Yes []	No [X]	Unknown []
Air Sampling	Yes []	No [X]	Unknown []

6.0 BUILDING PHYSICAL STATUS

Interior Condition:	Poor
Exterior Condition:	Fair
Roof Condition:	Fair
Operational Equipment:	Not applicable
Radiological Products:	Not applicable
Chemical Products:	Oils, cleaners, and unknowns

2715-S OIL STORAGE FACILITY

7.0 HAZARDS IDENTIFIED

This building is isolated and not to be entered unless a specific safety appraisal is performed prior to entry. Visual inspection of the roof surface will not always indicate structural integrity, and some cracked roofing panels have been noted. All access to roof structures requires specific safety evaluations and written authorization from the facility manager.

Because of the nature and age of the facilities, conditions and potential hazards change periodically. Therefore, caution must be exercised by all personnel entering the facility to ensure their personal safety.

In addition, the facility is subject to periodic vermin intrusion. Animal feces should be avoided because it is a health hazard and may be radiologically contaminated. Spiders, bull snakes, and rattlesnakes are common throughout the area and have been encountered in other facilities in the past.

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2718-S SAND FILTER SAMPLER BUILDING**1.0 LOCATION**

The 2718-S Sand Filter Sampler Building is located in the 200 West Area. The coordinates are N34500, W73600.

2.0 PURPOSE/HISTORY

The 2718-S Sand Filter Sampler Building was built to monitor the performance of the 291-S Sand Filter.

3.0 DESCRIPTION/DIMENSIONS

The 2718-S Sand Filter Sampler Building is a wooden building that is 4 m (12.5 ft) by 4 m (14 ft) by 2 m (8 ft) high with a sloping roof. The total floor area is 16.3 m² (175 ft²).

4.0 REFERENCE

Drawings: H-2-5514, H-2-5515

5.0 UTILITIES AND SAFETY SYSTEMS

Intrusion Alarm	Yes []	No [x]	Unknown []
Heat	Yes [x]	No []	Unknown []
Ventilation	Yes []	No [x]	Unknown []
Air Conditioning	Yes []	No [x]	Unknown []
Electricity	Yes [x]	No []	Unknown []
Fire Detection	Yes []	No [x]	Unknown []
Fire Suppression	Yes []	No [x]	Unknown []
Compressed Air	Yes []	No [x]	Unknown []
Vacuum Air	Yes []	No [x]	Unknown []
Breathing Air	Yes []	No [x]	Unknown []
Water	Yes []	No [x]	Unknown []
Drain	Yes []	No [x]	Unknown []
Emergency Shower	Yes []	No [x]	Unknown []
Exclusion Fence	Yes []	No [x]	Unknown []
Air Sampling	Yes []	No []	Unknown [x]

6.0 BUILDING PHYSICAL STATUS

Interior Condition:	Fair
Exterior Condition:	Poor
Roof Condition:	Poor
Operational Equipment:	Not applicable
Radiological Products:	To be determined
Chemical Products:	To be determined

2718-S SAND FILTER SAMPLER

7.0 HAZARDS IDENTIFIED

This small wooden outbuilding was used for storage and ventilation system monitoring. Currently it is being used for equipment and lead storage. The lead is to be removed in the near future. Following that and until final outbuilding cleanout and demolition, this building should not be entered without the specific permission of the building administrator.

This building is isolated and should not be entered unless a specific safety appraisal is performed prior to entry. Visual inspection of the roof surface will not always indicate structural integrity, and some cracked roofing panels have been noted. All access to roof structures requires specific safety evaluations and written authorization from the facility manager.

Because of the nature and age of the facilities, conditions and potential hazards will change periodically. Therefore, caution must be taken by all personnel entering the facility to ensure their personal safety.

In addition, the facility is subject to periodic vermin intrusion. Animal feces should be avoided as it is a health hazard and may be radiologically contaminated. Spiders, bull snakes, and rattlesnakes are common throughout the area and have been encountered in other facilities in the past.

2718-S SAND FILTER SAMPLER

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2904-SA COOLING WATER SAMPLER BUILDING

1.0 LOCATION

The 2904-SA Cooling Water Sampler Building is located in the 200 West Area. The coordinates are N34400, W14300.

2.0 PURPOSE/HISTORY

The 2904-SA Sample Building was built in 1956 to provide sampling of process waste flowing from S-Plant through the 2904-S-170 Weir to liquid waste disposal sites.

3.0 DESCRIPTION/DIMENSIONS

The 2904-SA Sample Building is a 2-m (8-ft) by 2-m (8-ft) by 2-m (7-ft)-high prefabricated metal building that rests on a concrete foundation.

The sample equipment inside the building consists of a pump. The pump is a 0.6-m (2-ft)-diameter, 0.9-m (3-ft)-high stainless steel tank, below grade, with a sample riser coming up through the building floor and associated piping.

The sample building extends 97 cm (3.2 ft) over the south end of the 2904-S-170 Weir. Samples are taken of S-Plant process effluents routed through the weir.

4.0 REFERENCE

Drawings: H-2-30283

5.0 UTILITIES AND SAFETY SYSTEMS

Intrusion Alarm	Yes []	No [x]	Unknown []
Heat	Yes []	No [x]	Unknown []
Ventilation	Yes []	No [x]	Unknown []
Air Conditioning	Yes []	No [x]	Unknown []
Electricity	Yes [x]	No []	Unknown []
Fire Detection	Yes []	No [x]	Unknown []
Fire Suppression	Yes []	No [x]	Unknown []
Compressed Air	Yes []	No [x]	Unknown []
Vacuum Air	Yes []	No [x]	Unknown []
Breathing Air	Yes []	No [x]	Unknown []
Water	Yes []	No [x]	Unknown []
Drain	Yes []	No [x]	Unknown []
Emergency Shower	Yes []	No [x]	Unknown []
Exclusion Fence	Yes []	No [x]	Unknown []
Air Sampling	Yes []	No []	Unknown [x]

2904-SA COOLING WATER SAMPLER BUILDING

6.0 BUILDING PHYSICAL STATUS

Interior Condition:	Fair
Exterior Condition:	Poor
Roof Condition:	Poor
Operational Equipment:	Not applicable
Radiological Products:	To be determined
Chemical Products:	To be determined

7.0 HAZARDS IDENTIFIED

This building is isolated and should not be entered unless a specific safety appraisal is performed prior to entry. Visual inspection of the roof surface will not always indicate structural integrity, and some cracked roofing panels have been noted. All access to roof structures requires specific safety evaluations and written authorization from the facility manager.

Because of the nature and age of the facilities, conditions and potential hazards will change periodically. Therefore, caution must be taken by all personnel entering the facility to ensure their personal safety.

In addition, the facility is subject to periodic vermin intrusion. Animal feces should be avoided as it is a health hazard and may be radiologically contaminated. Spiders, bull snakes, and rattlesnakes are common throughout the area and have been encountered in other facilities in the past.

2904-SA COOLING WATER SAMPLER BUILDING

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241-SX-401 WASTE DISPOSAL CONDENSER HOUSE**1.0 LOCATION**

The 241-SX-401 Waste Disposal Condenser House is located in the 200 West Area. The coordinates are N35550, W7600.

2.0 PURPOSE/HISTORY

The 241-SX-401 Waste Disposal Condenser House was built in 1954 to provide condensation for off-gases from the 241-SX Tank Farm.

3.0 DESCRIPTION/DIMENSIONS

The 241-SX-401 Waste Disposal Condenser House is identical to the 241-SX-402 Waste Disposal Condenser House, except that the 241-SX-402 Condenser House contains additional instrumentation.

The building is constructed of concrete with walls varying from 0.3 m to 0.8 m (1 ft to 2-1/2 ft) thick, for shielding purposes. The building is 11 m (36 ft) long, 7 m (24 ft) wide, 7 m (24 ft) high, and 2 m (7 ft) below grade. Attached to the south end of each building is a single-story 4-m (12-ft) by 2-m (8-ft) control room made of wood and plaster board.

4.0 REFERENCE

Photograph: 93070619-149CN

Drawings: H-2-39580, H-2-39581

5.0 UTILITIES AND SAFETY SYSTEMS

Intrusion Alarm	Yes []	No []	Unknown [x]
Heat	Yes []	No [x]	Unknown []
Ventilation	Yes []	No [x]	Unknown []
Air Conditioning	Yes []	No [x]	Unknown []
Electricity	Yes [x]	No []	Unknown []
Fire Detection	Yes []	No [x]	Unknown []
Fire Suppression	Yes []	No [x]	Unknown []
Compressed Air	Yes []	No [x]	Unknown []
Vacuum Air	Yes []	No [x]	Unknown []
Breathing Air	Yes []	No [x]	Unknown []
Water	Yes []	No [x]	Unknown []
Drain	Yes []	No [x]	Unknown []
Emergency Shower	Yes []	No [x]	Unknown []
Exclusion Fence	Yes [x]	No []	Unknown []
Air Sampling	Yes []	No [x]	Unknown []

241-SX-401 WASTE DISPOSAL CONDENSER HOUSE

6.0 BUILDING PHYSICAL STATUS

Interior Condition:	Fair
Exterior Condition:	Poor
Roof Condition:	Poor
Operational Equipment:	Not applicable
Radiological Products:	To be determined
Chemical Products:	To be determined

7.0 HAZARDS IDENTIFIED

This building is isolated and should not be entered unless a specific safety appraisal is performed prior to entry. Visual inspection of the roof surface will not always indicate structural integrity, and some cracked roofing panels have been noted. All access to roof structures requires specific safety evaluations and written authorization from the facility manager.

Because of the nature and age of the facilities, conditions and potential hazards will change periodically. Therefore, caution must be taken by all personnel entering the facility to ensure their personal safety.

In addition, the facility is subject to periodic vermin intrusion. Animal feces should be avoided as it is a health hazard and may be radiologically contaminated. Spiders, bull snakes, and rattlesnakes are common throughout the area and have been encountered in other facilities in the past.

241-SX-401 WASTE DISPOSAL CONDENSER HOUSE

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241-SX-402 WASTE DISPOSAL CONDENSER HOUSE**1.0 LOCATION**

The 241-SX-402 Waste Disposal Condenser House is located in the 200 West Area. The coordinates are N35450, W7600.

2.0 PURPOSE/HISTORY

The 241-SX-402 Waste Disposal Condenser House was built in 1954 to provide condensation for off-gases from the 241-SX Tank Farms. The 241-SX-402 Waste Disposal Condenser House was used very little and is contaminated only to very low levels as compared to the 241-SX-401 Waste Disposal Condenser House.

3.0 DESCRIPTIONS/DIMENSIONS

The 241-SX-402 Waste Disposal Condenser House is identical to the 241-SX-402 Disposal Condenser House, except that 241-SX-402 contains additional instrumentation.

The building is constructed of concrete walls that vary from 0.3 m (1 ft) to 0.8 m (2.5 ft) thick for shielding purposes. The building is 11 m (36 ft) long, 7 m (24 ft) wide, 7 m (24 ft) high, and 2 m (7 ft) below grade. Attached to the south end of each building is a single-story 4-m (12-ft) by 2-m (8-ft) control room made of wood and plaster board.

4.0 REFERENCE

Photograph: 93070619-151CN

Drawings: H-2-39917, H-2-39918

5.0 UTILITIES AND SAFETY SYSTEMS

Intrusion Alarm	Yes []	No []	Unknown [x]
Heat	Yes []	No [x]	Unknown []
Ventilation	Yes []	No [x]	Unknown []
Air Conditioning	Yes []	No [x]	Unknown []
Electricity	Yes [x]	No []	Unknown []
Fire Detection	Yes []	No [x]	Unknown []
Fire Suppression	Yes []	No [x]	Unknown []
Compressed Air	Yes []	No [x]	Unknown []
Vacuum Air	Yes []	No [x]	Unknown []
Breathing Air	Yes []	No [x]	Unknown []
Water	Yes []	No [x]	Unknown []
Drain	Yes []	No [x]	Unknown []
Emergency Shower	Yes []	No [x]	Unknown []
Exclusion Fence	Yes [x]	No []	Unknown []
Air Sampling	Yes []	No [x]	Unknown []

241-SX-402 WASTE DISPOSAL CONDENSER HOUSE

6.0 BUILDING PHYSICAL STATUS

Interior Condition:	Fair
Exterior Condition:	Poor
Roof Condition:	Poor
Operational Equipment:	Not applicable
Radiological Products:	To be determined
Chemical Products:	To be determined

7.0 HAZARDS IDENTIFIED

This building is isolated and should not be entered unless a specific safety appraisal is performed prior to entry. Visual inspection of the roof surface will not always indicate structural integrity, and some cracked roofing panels have been noted. All access to roof structures requires specific safety evaluations and written authorization from the facility manager.

Because of the nature and age of the facilities, conditions and potential hazards will change periodically. Therefore, caution must be taken by all personnel entering the facility to ensure their personal safety.

In addition, the facility is subject to periodic vermin intrusion. Animal feces should be avoided because it is a health hazard and may be radiologically contaminated. Spiders, bull snakes, and rattlesnakes are common throughout the area and have been encountered in other facilities in the past.

241-SX-402 WASTE DISPOSAL CONDENSER HOUSE

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221-U PROCESS CANYON

1.0 LOCATION

The 221-U Process Canyon is located in the 200 West Area. The coordinates are N38500, W73400.

2.0 PURPOSE/HISTORY

Originally, the 221-U Process Canyon was constructed from 1944 to 1945 as an integral part of the U Plant fuel separations facility. However, it was never used for that purpose. From 1950 to 1952, U Plant was extensively modified for the uranium metal recovery program. Modifications included all new cell process equipment in the 221-U Canyon Building.

From 1952 to 1958, the 221-U Canyon Building recovered uranium from high-level waste underground storage (UGS) tanks containing liquid waste from the B&T (bismuth phosphate process) fuel separation plants. Solvent extraction with tributyl phosphate (TBP) separated and decontaminated uranium from the UGS tank's waste. The recovered uranyl nitrate hexahydrate (UNH) was sent to the 224-B UO_3 Facility to be refined into uranium tri-oxide.

3.0 DESCRIPTION/DIMENSIONS

The 221-U Process Canyon is a reinforced concrete building. The outside dimensions of the building are 247 m (810 ft) by 20 m (66 ft) by 24 m (77 ft), with 8 m (26 ft) below grade; the total area is 7,757 m^2 (83,500 ft^2).

The building is built in 20 sections with expansion joints between each section. These sections, numbered 1-20, are each 12.2 m (40 ft) long. The building is divided lengthwise into the gallery side and the process canyon side by a wall that runs the full length of the building. The floor is 2 m (6 ft) thick. The roof is 0.9 m to 1 m (3 to 4 ft) thick. The outside wall (process side) is 2 m (5 ft) thick. The outside wall (gallery side) is 0.9 m (3 ft) thick. The dividing wall is 2 m to 3 m (5 to 9 ft) thick.

The gallery side, 4 m (14 ft) wide (inside dimensions), has four floors. From bottom to top these are the electrical gallery, pipe gallery, operating gallery, and the crane cabway, which has no ceiling and is open to the process side.

The galleries contain the electrical distribution center, almost all cold piping, instrumentation, and controls for cell processes.

The process canyon side, 11 m (37 ft) wide (inside dimensions), contains process cells, hot pipe trench, and the air tunnel. The cells are in the middle of the building next to the galleries; the trench and tunnel are between the cells and the outside wall. There are 40 process cells arranged two per section in a single row. They are separated from the pipe trench, air tunnel, and each other by 2-m (7-ft)-thick walls, and from the electrical and pipe galleries by 3-m (9-ft)-thick walls.

221-U PROCESS CANYON**3.0 DESCRIPTION/DIMENSIONS (Continued)**

Typical cells, 5 m (18 ft) by 4 m (13 ft) by 9 m (28 ft), are closed by removable 2-m (6-ft)-thick concrete cover blocks. Cell #10 is 14 m (45 ft) deep. It is used to collect cell drainage from the pipe trench and other cells through a concrete-encased 61-cm (24-in.) tile sewer underneath the cell floor that runs the building length. Cells, designed for remote operations and maintenance, contain all hot process vessels and equipment. Lines entering the cells are embedded in the cell wall and terminate on the inside of the cell with remote connectors. All intracell piping is remotely removable pipe jumpers. Cell equipment and vessels are remotely removable. The hot pipe trench, which runs parallel to the cells from Section #3 through #20, is 2 m (8 ft) wide and 3 m (10 ft) deep, from the top of the blocks, and is closed with 0.6-m (2-ft)-thick removable concrete cover blocks. The trench contains intercell process and waste transfer piping.

The air tunnel, located directly beneath the pipe trench and separated from it and the cells by 2-m (7-ft)-thick walls, is 3 m (10.7 ft) high by 3 m (10-1/2 ft) wide, and runs from Section #3 through #20. It provides exhaust ventilation for the cells and pipe trench and connects to the 291-U ventilation system outside the building.

The top of the cell and pipe trench cover blocks, which are level with the floor of the operating gallery, form the canyon deck. From the canyon deck to the ceiling, there is 12 m (40 ft) of open space. This space provides access to the cells for remote maintenance work performed by the overhead traveling bridge crane. The crane spans the width and travels the length. It is equipped with 75-ton and 10-ton hoists and auxiliaries with electric impact wrenches. The crane cab, suspended from the bridge, travels in the crane cabway, protected from the canyon by the 2-m (5-ft)-thick wall of the cabway.

A reinforced concrete railroad tunnel, 66 m (216 ft) by 8 m (26 ft) by 9 m (31 ft), with walls 0.8 m to 1 m (2.8 ft to 4-1/2 ft) thick, enters the building at Section #2, Cell #3 and runs the building width. Access to the tunnel is provided by removing the Cell #3 cover blocks. Personnel access to the building is through concrete enclosed stairwells, on both sides of the building, at all odd numbered sections. The gallery side of the building is butted up to, and joined with, the 271-U office/service building.

The galleries and cells still contain most of the uranium recovery process equipment.

4.0 REFERENCE

Photograph: 93070619-139CN

Drawings: H-2-41529

221-U PROCESS CANYON

5.0 UTILITIES AND SAFETY SYSTEMS

Intrusion Alarm	Yes []	No []	Unknown [x]
Heat	Yes [x]	No []	Unknown []
Ventilation	Yes [x]	No []	Unknown []
Air Conditioning	Yes [x]	No []	Unknown []
Electricity	Yes [x]	No []	Unknown []
Fire Detection	Yes []	No []	Unknown [x]
Fire Suppression	Yes [x]	No []	Unknown []
Compressed Air	Yes []	No []	Unknown [x]
Vacuum Air	Yes []	No []	Unknown [x]
Breathing Air	Yes []	No []	Unknown [x]
Water	Yes []	No []	Unknown [x]
Drain	Yes [x]	No []	Unknown []
Emergency Shower	Yes []	No []	Unknown [x]
Exclusion Fence	Yes []	No []	Unknown [x]
Air Sampling	Yes [x]	No []	Unknown []

6.0 BUILDING PHYSICAL STATUS

Interior Condition:	Fair
Exterior Condition:	Poor
Roof Condition:	Poor
Operational Equipment:	Not applicable
Radiological Products:	To be determined
Chemical Products:	To be determined

7.0 HAZARDS IDENTIFIED

Radiological Hazards

The 221-U Building is a radiologically controlled area and an isolated facility. Radioactive contamination is primarily fission products and uranium from chemical processing operations. Routine entry and exit requirements are identified in the Radiation Work Permit (RWP), which is posted at the facility entrance. Nonroutine activities require a special RWP be prepared. RWP requirements are mandatory.

High Radiation Areas. There are posted high radiation areas in the 221-U Process Canyon. These areas shall not be routinely entered without specific written instructions from the building administrator.

Airborne Radiation Areas. The 221-U Process Canyon is an airborne radiation zone and specific respiratory protection equipment is required to enter this area. These requirements are included in the RWP.

221-U PROCESS CANYON - CONTINUED

7.0 HAZARDS IDENTIFIED (Continued)

Surface Contamination Areas. There are a number of posted surface contamination areas in the electrical, pipe and operating galleries, as well as the canyon portion of the 221-U Building. Specific posted surface contamination areas include the canyon and the portions of various galleries. The RWP defines anticontamination clothing requirements for access to these areas.

Industrial Hazards

Fall Hazards. The absence of guardrails on the building's flat roofs presents a potential fall hazard. The roof structure is in good condition; however, visual inspection of the roof surface may not always indicate structural integrity. All access to the roofs requires specific safety evaluations and written authorizations.

Confined Spaces. There are unmarked confined spaces in and around the facility. While facility management is working to better define these areas, caution must be used to ensure that the conditions of an area do not constitute a confined space. Confined spaces shall only be entered after following the prescribed actions listed in *Industrial Safety Manual*, WHC-CM-4-3, Section W-13.

Energy Sources. The facility is powered by dual 2400-volt electrical feeds with 480-volt distribution. The switchgear is aged and must be operated with extreme caution. Most of the electrical equipment is deactivated. Written authorization and work instructions are required for all 480-volt switchgear operations. All electrical lines should be considered energized until proven otherwise.

Hygiene Hazards

Asbestos. Piping, electrical wire insulation, and ventilation components are insulated with asbestos-containing materials, and transite is used in certain interior structural components. Asbestos is normally maintained in a nonfriable condition. However, the asbestos-containing material is subject to deterioration, and friable asbestos may be encountered.

Animals and Insects. The facility is subject to periodic animal intrusion, most commonly birds or mice although larger animals could be encountered. Animal feces should be avoided as it is a health hazard and may be radiologically contaminated. Spiders are common throughout the facility.

221-U PROCESS CANYON - CONTINUED

7.0 HAZARDS IDENTIFIED (Continued)

Hygiene Hazards

Chemicals. This facility was a chemical processing facility that used large amounts of tributyl phosphate and additional chemical solutions to process high-level wastes from B Plant. While the facility deactivation removed bulk materials, residual materials remain that should be avoided unless workers are actively involved in removing this material using written instructions. Examples of chemical residue occur at pipe flanges and drains and pump/valve glands.

Recently, oils, paints, lead, solvents, and spray cans have been found in the building. These items have been or will be removed for proper disposal. This emphasizes the fact that the potential remains for discovering old containers in any surplus facility. If chemical or containers are found, they must not be disturbed and the building administrator shall be notified.

Numerous manoms still contain acetylene tetrabromide or mercury as the operating medium. Care must be taken not to disturb any of this material unless workers are actively involved in removing this material using written instructions.

221-U PROCESS CANYON

271-U OFFICE BUILDING

1.0 LOCATION

The 271-U Office Building is located in the 200 West Area. The coordinates are N38500, W73400.

2.0 PURPOSE/HISTORY

The 271-U Office Building was built from 1944 to 1945 as a support facility for 221-U operations. The third floor was designated for plutonium storage.

3.0 DESCRIPTION/DIMENSIONS

The 271-U Office Building is an office/service building consisting of reinforced concrete foundation, floors, pillars, pumice block walls, and a built-up asphalt and gravel roof. Outside dimensions are 49 m (160 ft) by 15 m (48 ft) by 20 m (67 ft, 10 in.), with 3 m (10 ft 6 in.) below grade and an area of 2,854 m² (30,720 ft²).

This is a four-story structure, including the basement, and is physically attached to the gallery side of the 221-U Canyon Building. Access to the 221-U galleries is provided through double doors at Sections 11 and 13 of 271-U Building or stairwell entrances at each odd numbered section.

The basement contains compressors, ventilation supply equipment, offices and shops. The first and second floors contain offices and storage. The third floor contains chemical make-up facilities and a plutonium storage area, which is secured through combination lock.

4.0 REFERENCE

Photograph: 93070619-137CN

Drawings: H-2-43231

271-U OFFICE BUILDING

5.0 UTILITIES AND SAFETY SYSTEMS

Intrusion Alarm	Yes	[]	No	[x]	Unknown	[]
Heat	Yes	[x]	No	[]	Unknown	[]
Ventilation	Yes	[x]	No	[]	Unknown	[]
Air Conditioning	Yes	[x]	No	[]	Unknown	[]
Electricity	Yes	[x]	No	[]	Unknown	[]
Fire Detection	Yes	[]	No	[]	Unknown	[x]
Fire Suppression	Yes	[x]	No	[]	Unknown	[]
Compressed Air	Yes	[]	No	[]	Unknown	[x]
Vacuum Air	Yes	[]	No	[]	Unknown	[x]
Breathing Air	Yes	[]	No	[]	Unknown	[x]
Water	Yes	[x]	No	[]	Unknown	[]
Drain	Yes	[x]	No	[]	Unknown	[]
Emergency Shower	Yes	[]	No	[]	Unknown	[x]
Exclusion Fence	Yes	[]	No	[]	Unknown	[x]
Air Sampling	Yes	[]	No	[x]	Unknown	[]

6.0 BUILDING PHYSICAL STATUS

Interior Condition:	Fair
Exterior Condition:	Poor
Roof Condition:	Poor
Operational Equipment:	Not applicable
Radiological Products:	To be determined
Chemical Products:	To be determined

7.0 HAZARDS IDENTIFIED

This building is being prepared for re-occupancy and has undergone extensive asbestos abatement and remodeling efforts. The basement and third floor abatement work is planned for fiscal year 1993. Occupied portions of the building are relatively hazard free. However, as with any aging structure, caution is advised at all times. When the lesser travelled areas of the building are entered, extreme caution is advised because deteriorated or hazardous conditions are possible.

This building is isolated and should not to be entered unless a specific safety appraisal is performed beforehand. Visual inspection of the roof surface will not always indicate structural integrity, and some cracked roofing panels have been noted. All access to roof structures requires specific safety evaluations and written authorization from the facility manager.

Because of the nature and age of the facilities, conditions and potential hazards will change periodically. Therefore, caution must be taken by all personnel entering the facility to ensure their personal safety.

271-U OFFICE BUILDING

7.0 HAZARDS IDENTIFIED (Continued)

In addition, the facility is subject to periodic vermin intrusion. Animal feces should be avoided as it is a health hazard and may be radiologically contaminated. Spiders, bull snakes, and rattlesnakes are common throughout the area and have been encountered in other facilities in the past.

271-U OFFICE BUILDING

276-U SOLVENT RECOVERY FACILITY

1.0 LOCATION

The 276-U Solvent Recovery Facility is located in the 200 West Area. The coordinates are N38500, W73400.

2.0 PURPOSE/HISTORY

The 276-U Solvent Recovery Facility was built for tributyl phosphate (TBP) and diluent storage, for makeup and treatment of the organic solutions used in the 221-U Canyon Building.

3.0 DESCRIPTION/DIMENSIONS

The 267-U Solvent Handling Facility is an aboveground concrete basin, 20 m (66 ft) by 17 m (54 ft) by 2 m (8 ft), with 2 m (5 ft) below grade. It is physically attached to the south wall of the 221-U Canyon Building.

The basin contains three tanks and three vacant concrete pads. Tank 380 is 5 m (17 ft) in diameter and 5 m (17.5 ft) high. The tank is made of carbon steel with a 109,777-L (29,000-gal) capacity. Tank 381 is 2 m (8 ft) in diameter and 5 m (17.5 ft) high, and is made of black iron. It has a 9,500-L (2,500-gal) capacity.

There are also stairs, platforms, catwalks, piping and utilities for service at the tank tops.

4.0 REFERENCE

Photograph: 93080357-62CN

Drawings: H-2-42231, H-2-41207

276-U SOLVENT RECOVERY FACILITY

5.0 UTILITIES AND SAFETY SYSTEMS

Intrusion Alarm	Yes []	No [x]	Unknown []
Heat	Yes []	No [x]	Unknown []
Ventilation	Yes []	No [x]	Unknown []
Air Conditioning	Yes []	No [x]	Unknown []
Electricity	Yes [x]	No []	Unknown []
Fire Detection	Yes []	No [x]	Unknown []
Fire Suppression	Yes []	No [x]	Unknown []
Compressed Air	Yes []	No []	Unknown [x]
Vacuum Air	Yes []	No []	Unknown [x]
Breathing Air	Yes []	No []	Unknown [x]
Water	Yes [x]	No []	Unknown []
Drain	Yes [x]	No []	Unknown []
Emergency Shower	Yes [x]	No []	Unknown []
Exclusion Fence	Yes []	No [x]	Unknown []
Air Sampling	Yes []	No [x]	Unknown []

6.0 BUILDING PHYSICAL STATUS

Interior Condition:	Fair
Exterior Condition:	Poor
Roof Condition:	Poor
Operational Equipment:	Not applicable
Radiological Products:	To be determined
Chemical Products:	To be determined

7.0 HAZARDS IDENTIFIED

Recently, the asbestos has been removed from this area, but much of the area is posted as a surface contamination area. These posted zones shall be avoided except when actively engaged in cleanup or remediation activities.

This building is isolated and not to be entered unless a specific safety appraisal is performed prior to entry. Visual inspection of the roof surface will not always indicate structural integrity, and some cracked roofing panels have been noted. All access to roof structures requires specific safety evaluations and written authorization from the facility manager.

Because of the nature and age of the facilities, conditions and potential hazards will change periodically. Therefore, caution must be taken by all personnel entering the facility to ensure their personal safety.

In addition, the facility is subject to periodic vermin intrusion. Animal feces should be avoided as it is a health hazard and may be radiologically contaminated. Spiders, bull snakes, and rattlesnakes are common throughout the area and have been encountered in other facilities in the past.

276-U SOLVENT RECOVERY FACILITY

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**291-U EXHAUST FAN CONTROL HOUSE
291-U-1 STACK, SAND FILTER AND VESSEL VENT PIT**

1.0 LOCATION

The 291-U Exhaust Fan Control House is located in the 200 West Area. Its coordinates are N38500, W72900.

2.0 PURPOSE/HISTORY

The 291-U Complex was built from 1944 to 1945 to provide exhaust ventilation for the 221-U Canyon Building.

3.0 DESCRIPTION/DIMENSIONS

The 291-U Complex is made up of an Exhaust Fan Control House (291-U), Stack (291-U-1), Sand Filter, and Vessel Vent Pit. There are also several hundred feet of underground concrete air tunnels, some smaller blower pits and filter pits, plus various utilities and services.

The Exhaust Fan Control House (291-U) consists of a reinforced concrete foundation and floor, concrete and block walls, and a concrete slab roof covered with asphalt and gravel and trimmed in wood. The outside dimensions of the building are 6 m (18 ft) by 6 m (19 ft) by 4 m (14 ft) high, with an area of 31 m² (330 ft²). This is a one-story, one-room building with wooden doors. The building houses stack ventilation instrumentation and is equipped with two electric fans on the outside.

The exhaust stack (291-U-1) consists of reinforced concrete lined with acid resistant brick. The stack rests on an octagonal, two-tiered foundation of brick and concrete. The stack is 4.3 m (14 ft) in diameter at the base and 61 m (200 ft) high. The foundation measures 7 m (23 ft) across and 2 m (7 ft) thick at its greatest point.

The associated sand filter is a partially belowgrade, reinforced concrete box structure, 29 m (96 ft) by 29 m (96 ft) by 7 m (22 ft) deep, with an asphalt covered concrete slab roof.

The vessel vent pit is a belowgrade, reinforced concrete pit. The vessel vent pit measures 6 m (19 ft) by 5 m (15 ft) by 3 m (10.5 ft), with 0.6-m (2-ft)-thick walls and floor. The vessel vent pit is closed by 0.6-m (2-ft)-thick ground level blocks. It contains two exhaust fans that provide vessel ventilation. The exhaust escapes through a duct to the main 291-U Air Tunnel.

4.0 REFERENCE

Photograph: 93070619-145CN

**291-U EXHAUST FAN CONTROL HOUSE
291-U-1 STACK, SAND FILTER AND VESSEL VENT PIT**

5.0 UTILITIES AND SAFETY SYSTEMS

Intrusion Alarm	Yes []	No [x]	Unknown []
Heat	Yes [x]	No []	Unknown []
Ventilation	Yes [x]	No []	Unknown []
Air Conditioning	Yes [x]	No []	Unknown []
Electricity	Yes [x]	No []	Unknown []
Fire Detection	Yes []	No []	Unknown [x]
Fire Suppression	Yes []	No []	Unknown [x]
Compressed Air	Yes []	No []	Unknown [x]
Vacuum Air	Yes []	No []	Unknown [x]
Breathing Air	Yes []	No []	Unknown [x]
Water	Yes []	No []	Unknown [x]
Drain	Yes []	No []	Unknown []
Emergency Shower	Yes []	No []	Unknown []
Exclusion Fence	Yes [x]	No []	Unknown []
Air Sampling	Yes [x]	No []	Unknown []

6.0 BUILDING PHYSICAL STATUS

Interior Condition:	Fair
Exterior Condition:	Poor
Roof Condition:	Poor
Operational Equipment:	Not applicable
Radiological Products:	To be determined
Chemical Products:	To be determined

7.0 HAZARDS IDENTIFIED

The 291-U Ventilation Building supports the operation of the U-Plant ventilation and monitoring system. The primary hazards are auto-start equipment, oils and greases in and around the building, and general asbestos concerns throughout the area.

This building is isolated and should not be entered unless a specific safety appraisal is performed prior to entry. Visual inspection of the roof surface will not always indicate structural integrity, and some cracked roofing panels have been noted. All access to roof structures requires specific safety evaluations and written authorization from the facility manager.

Because of the nature and age of the facilities, conditions and potential hazards will change periodically. Therefore, caution must be taken by all personnel entering the facility to ensure their personal safety.

**291-U EXHAUST FAN CONTROL HOUSE
291-U-1 STACK, SAND FILTER AND VESSEL VENT PIT**

7.0 HAZARDS IDENTIFIED (Continued)

In addition, the facility is subject to periodic vermin intrusion. Animal feces should be avoided as it is a health hazard and may be radiologically contaminated. Spiders, bull snakes, and rattlesnakes are common throughout the area and have been encountered in other facilities in the past.

**291-U EXHAUST FAN CONTROL HOUSE
291-U-1 STACK, SAND FILTER AND VESSEL VENT PIT**

292-U STACK MONITORING STATION**1.0 LOCATION**

The 292-U Stack Monitoring Station is located in the 200 Area.

2.0 PURPOSE/HISTORY

This information is not available.

3.0 DESCRIPTION/DIMENSIONS

The total area of the 292-U Stack Monitoring Station is 31 m² (336 ft²).

4.0 REFERENCE

Not Available.

5.0 UTILITIES AND SAFETY SYSTEMS

Intrusion Alarm	Yes []	No [x]	Unknown []
Heat	Yes []	No [x]	Unknown []
Ventilation	Yes []	No [x]	Unknown []
Air Conditioning	Yes []	No [x]	Unknown []
Electricity	Yes [x]	No []	Unknown []
Fire Detection	Yes []	No [x]	Unknown []
Fire Suppression	Yes []	No [x]	Unknown []
Compressed Air	Yes []	No [x]	Unknown []
Vacuum Air	Yes []	No [x]	Unknown []
Breathing Air	Yes []	No [x]	Unknown []
Water	Yes [x]	No []	Unknown []
Drain	Yes [x]	No []	Unknown []
Emergency Shower	Yes []	No [x]	Unknown []
Exclusion Fence	Yes []	No [x]	Unknown []
Air Sampling	Yes []	No [x]	Unknown []

6.0 BUILDING PHYSICAL STATUS

Interior Condition:	Poor
Exterior Condition:	Fair
Roof Condition:	Poor
Operational Equipment:	Not applicable
Radiological Products:	Yes
Chemical Products:	Asbestos, unknowns

292-U STACK MONITORING STATION

7.0 HAZARDS IDENTIFIED

This building is isolated and not to be entered unless a specific safety appraisal is performed prior to entry. Visual inspection of the roof surface will not always indicate structural integrity, and some cracked roofing panels have been noted. All access to roof structures requires specific safety evaluations and written authorization from the facility manager.

Because of the nature and age of the facilities, conditions and potential hazards change periodically. Therefore, caution must be exercised by all personnel entering the facility to ensure their personal safety.

In addition, the facility is subject to periodic vermin intrusion. Animal feces should be avoided because it is a health hazard and may be radiologically contaminated. Spiders, bull snakes, and rattlesnakes are common throughout the area and have been encountered in other facilities in the past.

232-Z WASTE INCINERATION FACILITY

1.0 LOCATION

The 232-Z Waste Incineration Facility is located in the 200 West Area. The coordinates are N38500, W77900.

2.0 PURPOSE/HISTORY

The 232-Z Waste Incineration Facility was built in 1959 to remove plutonium from contaminated solid waste by incineration and leaching. An enclosed system of glove boxes was provided for sorting the wastes, leaching the noncombustibles, and burning combustibles.

3.0 DESCRIPTION/DIMENSIONS

The 232-Z Waste Incineration Facility is a concrete block structure, made of slightly sloped concrete over metal decking roofs.

The building is divided into areas for process, storage, change rooms, chemical preparation, ventilation, and electrical equipment. The outside dimension are 17.3 m (56.7 ft) long by 11.2 m (36.7 ft) wide. The building is 5.9 m (19.3 ft) high at the two-storied north end, over the service area, and 4.8 m (15.7 ft) high over the remaining one-storied process and storage area. There is also a small open-ended condensor enclosure attached to the east wall that measures approximately 2.1 m (7 ft) by 2.4 m (8 ft) by 3.1 m (10 ft) high.

4.0 REFERENCE

Photograph: 93070619-178CN

Drawings: H-2-23105, H-2-23106

232-Z WASTE INCINERATION FACILITY**5.0 UTILITIES AND SAFETY SYSTEMS**

Intrusion Alarm	Yes []	No [x]	Unknown []
Heat	Yes [x]	No []	Unknown []
Ventilation	Yes [x]	No []	Unknown []
Air Conditioning	Yes [x]	No []	Unknown []
Electricity	Yes [x]	No []	Unknown []
Fire Detection	Yes []	No [x]	Unknown []
Fire Suppression	Yes []	No [x]	Unknown []
Compressed Air	Yes []	No [x]	Unknown []
Vacuum Air	Yes []	No [x]	Unknown []
Breathing Air	Yes []	No [x]	Unknown []
Water	Yes []	No [x]	Unknown []
Drain	Yes []	No [x]	Unknown []
Emergency Shower	Yes []	No [x]	Unknown []
Exclusion Fence	Yes []	No [x]	Unknown []
Air Sampling	Yes []	No [x]	Unknown []

6.0 BUILDING PHYSICAL STATUS

Interior Condition:	Fair
Exterior Condition:	Poor
Roof Condition:	Poor
Operational Equipment:	Not applicable
Radiological Products:	To be determined
Chemical Products:	To be determined

7.0 HAZARDS IDENTIFIED

This building is isolated and should not be entered unless a specific safety appraisal is performed prior to entry. Visual inspection of the roof surface will not always indicate structural integrity, and some cracked roofing panels have been noted. All access to roof structures requires specific safety evaluations and written authorization from the facility manager.

Because of the nature and age of the facilities, conditions and potential hazards will change periodically. Therefore, caution must be taken by all personnel entering the facility to ensure their personal safety.

In addition, the facility is subject to periodic vermin intrusion. Animal feces should be avoided as it is a health hazard and may be radiologically contaminated. Spiders, bull snakes, and rattlesnakes are common throughout the area and have been encountered in other facilities in the past.

232-Z WASTE INCINERATION FACILITY

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105-B BATTERY ACID SUMP (120-B-1)

1.0 LOCATION

The 105-B Battery Acid Sump, located in the 100-B/C Area, is east of the 105-B Building and adjacent to the main switchgear room.

2.0 PURPOSE/HISTORY

The 105-B Battery Acid Sump, which was in use from 1944 to 1969, served as an inactive hazardous waste containment unit.

3.0 DESCRIPTION/DIMENSIONS

The unit contains unknown amounts of sulfuric acid from spills during use and from servicing an emergency power battery bank inside the 105-B Building. The sump is lined with concrete.

SANITARY WASTE SITE (124-B-1)

1.0 LOCATION

The 124-B-1 Sanitary Waste Site is located in the 100-B/C Area.

2.0 PURPOSE/HISTORY

The 124-B-1 Sanitary Waste Site was used for sanitary waste disposal.

3.0 DESCRIPTION/DIMENSIONS

The site consists of a septic tank and a drain field.

SANITARY WASTE SITE (124-B-2)

1.0 LOCATION

The 124-B-2 Sanitary Waste Site is located in the 100-B/C Area.

2.0 PURPOSE/HISTORY

The 124-B-2 Sanitary Waste Site was used for sanitary waste disposal.

3.0 DESCRIPTION/DIMENSIONS

The 124-B-2 Sanitary Waste Site consists of a septic tank and a drain field.

188-B ASH DISPOSAL AREA (126-B-1)

1.0 LOCATION

The 188-B Ash Disposal Area is located in the 100-B/C Area, about 305 m (1,000 ft) east of the 184-B Powerhouse site.

2.0 PURPOSE/HISTORY

The 188-B Ash Disposal Area served as a solid waste ground disposal unit (ash pit) and received waste from 1944 to 1969. Currently, the 188-B Ash Disposal Area is an inactive solid waste ground disposal unit (ash pit). Unknown amounts of coal ash were sluiced to the pit with raw river water.

3.0 DESCRIPTION/DIMENSION

No description available.

183-B CLEARWELLS (126-B-2)

1.0 LOCATION

The 183-B Clearwells are located in the 100-B/C Area.

2.0 PURPOSE/DESCRIPTION

The 183-B Clearwells were originally used as underground treated water storage tanks for the 100-B Area. The 183-B Clearwells are now authorized to receive demolition waste, including asbestos-containing materials.

3.0 DESCRIPTION/DIMENSIONS

The 183-B Clearwells are covered, reinforced concrete, 3,790,000 l (10,000,000 gal) capacity basins.

184-B COAL PIT (126-B-3)

1.0 LOCATION

The 184-B Coal Pit is located in the 100-B/C Area.

2.0 PURPOSE/HISTORY

The 184-B Coal Pit stored coal for the powerhouse. When the 100-B Area was deactivated, the pit was converted to a clean, non-hazardous waste site. It has been authorized to receive demolition waste, including asbestos-containing materials.

3.0 DESCRIPTION/DIMENSIONS

The 184-B Coal Pit is an excavated pit approximately 122 m by 122 m (400 ft by 400 ft) and 6.1 m (20 ft) deep.

SANITARY WASTE SITE (124-C-3)

1.0 LOCATION

The 124-C-3 Sanitary Waste Site is located in the 100-B/C Area.

2.0 PURPOSE/HISTORY

The 124-C-3 Sanitary Waste Site provides sanitary waste disposal.

3.0 DESCRIPTION/DIMENSIONS

The 124-C-3 Sanitary Waste Site consists of a septic tank and a drain field.

105-C HIGH TANKS (187-C-1 AND 187-C-2)

1.0 LOCATION

The 187-C-1 and 187-C-2 High Tanks are located on the southwest and northwest corners of 105-C Reactor Building in 100-B/C Area.

2.0 PURPOSE/HISTORY

The 187-C-1 and 187-C-2 High Tanks were used for water storage at 105-C. The tanks were manufactured in 1946 by the Chicago Bridge and Iron Company.

3.0 DESCRIPTION/DIMENSIONS

The 187-C-1 and 187-C-2 High Tanks are elevated water storage tanks. They are made of steel construction and have a capacity of 250,830 l (300,000 gal) each. Each tank has a tower, approximately 36 m (120 ft) high.

SANITARY WASTE SITE (124-D-1)

1.0 LOCATION

The 124-D-1 Sanitary Waste Site is located in the 100-D/DR Area.

2.0 PURPOSE/HISTORY

The 124-D-1 Sanitary Waste Site, which was used for sanitary waste water disposal, was in service from 1944 to 1965. Currently, the 1607-D1 Sanitary Waste Site is an inactive sanitary waste water disposal unit (septic tank and tile field). The 124-D-1 waste site received unknown amounts of sanitary waste from the 1701-D and 1709-D Badge Houses.

3.0 DESCRIPTION/DIMENSIONS

No description available.

SANITARY WASTE SITE (124-D-4)

1.0 LOCATION

The 1607-D4 Sanitary Waste Site is located in the 100-D/CR Area.

2.0 PURPOSE/HISTORY

The 124-D-4 Sanitary Waste Site, which was used for sanitary waste water disposal, was in service from 1944 to 1968. Currently, the 1607-D4 Sanitary Waste Site is an inactive sanitary waste water disposal unit (septic tank and tile field). The 124-D-4 Sanitary Waste Site received unknown amounts of sanitary waste from the 115-D Gas Recirculation Building.

3.0 DESCRIPTION/DIMENSIONS

No description available.

188-D ASH DISPOSAL AREA (126-D-1)

1.0 LOCATION

The 188-D Ash Disposal Area is located in the 100-D/DR Area, approximately 305 m (1,000 ft) east of the 184-D Powerhouse.

2.0 PURPOSE/HISTORY

The 188-D Ash Disposal Area was in service from 1944 to 1967. Coal ash was sluiced to the pit with raw river water. The area is an inactive solid waste ground disposal area (ash pit). Unknown amounts of coal ash were sluiced to the pit with raw river water.

3.0 DESCRIPTION/DIMENSIONS

No description available.

100-D/DR BURNING PIT (128-D-1)

1.0 LOCATION

The 100-D/DR Burning Pit is located in the 100-D/DR Area. The coordinates are N92000 and W51000.

2.0 PURPOSE/HISTORY

The 100-D/DR Burning Pit, which was used to burn non-radioactive wastes such as paint wastes, chemicals, and solvents, was in use from 1944 to 1967.

3.0 DESCRIPTION/DIMENSIONS

The 100-D/DR Burning Pit is 141 m (464 ft) high, and 30.5 by 30.5 m (100 ft by 100 ft) deep. The watertable is 23 m (76 ft).

4.0 REFERENCE

Drawings: H-3-57210, G-7-216

1716-D GASOLINE STORAGE TANK (130-D-1)

1.0 LOCATION

The 1716-D Gasoline Storage Tank is located in the 100-D/DR Area.

2.0 PURPOSE/HISTORY

The 1716-D Gasoline Storage Tank was in service from 1944 to 1968. The tank stored gasoline as an inactive hazardous material.

3.0 DESCRIPTION/DIMENSIONS

The 1716-D Gasoline Storage Tank is an underground storage tank.

SANITARY WASTE SITE (124-DR-3)

1.0 LOCATION

The 124-DR-3 Sanitary Waste Site is located in the 100-D/DR Area.

2.0 PURPOSE/HISTORY

The 124-DR-3 Sanitary Waste Site provided sanitary waste disposal. The site received unknown quantities of sanitary waste from the 105-DR Reactor Building.

3.0 DESCRIPTION/DIMENSIONS

The 124-DR-3 Sanitary Waste Site has a sanitary waste disposal unit with a septic tank and tile field.

SANITARY WASTE SITE (124-F-1)

1.0 LOCATION

The 124-F-1 Sanitary Waste Site is located in the 100-F Area.

2.0 PURPOSE/HISTORY

The 124-F-1 Sanitary Waste Site was used for sanitary waste disposal. It received unknown quantities of sanitary waste from the 100-F Area buildings during operation of the 100-F Area.

3.0 DESCRIPTION/DIMENSIONS

The 124-F-1 Site consists of a septic tank and drain field.

SANITARY WASTE SITE (124-F-2)

1.0 LOCATION

The 124-F-2 Sanitary Waste Site is located in the 100-F Area.

2.0 PURPOSE/HISTORY

The 124-F-2 Site was used for sanitary waste disposal. It received unknown quantities of sanitary waste from the 100-F Area buildings during operation of the 100-F Area.

3.0 DESCRIPTION/DIMENSIONS

The 124-F-2 Site consists of a septic tank and drain field.

SANITARY WASTE SITE (124-F-3)

1.0 LOCATION

The 124-F-3 Sanitary Waste Site is located in the 100-F Area.

2.0 PURPOSE/HISTORY

The 124-F-3 Waste Site provides sanitary waste disposal. The 124-F-3 Waste Site received unknown quantities of sanitary waste from 100-F Area buildings during operation of 100-F Area.

3.0 DESCRIPTION/DIMENSIONS

The 124-F-3 Site consists of a septic tank and drain field.

SANITARY WASTE SITE (124-F-4)

1.0 LOCATION

The 124-F-4 Sanitary Waste Site is located in the 100-F Area.

2.0 PURPOSE/HISTORY

The 124-F-4 Sanitary Waste Site provided sanitary waste disposal. The site received unknown quantities of sanitary waste from 100-F Area buildings during operation of the 100-F Area.

3.0 DESCRIPTION/DIMENSIONS

The 124-F-4 Sanitary Waste Site consists of a septic tank and drain field.

SANITARY WASTE SITE (124-F-5)

1.0 LOCATION

The 124-F-5 Sanitary Waste Site is located in the 100-F Area.

2.0 PURPOSE/HISTORY

The 124-F-5 Site provided sanitary waste disposal. The 124-F-5 Site received unknown quantities of sanitary waste from the 100-F Area buildings during operation of the 100-F Area.

3.0 DESCRIPTION/DIMENSIONS

The 124-F-5 Site consists of a septic tank and drain field.

SANITARY WASTE SITE (124-F-6)

1.0 LOCATION

The 124-F-6 Sanitary Waste Site is located in the 100-F Area.

2.0 PURPOSE/HISTORY

The 124-F-6 Site was used for sanitary waste disposal. The 124-F-6 Site received unknown quantities of sanitary waste from 100-F Area buildings during operation of the 100-F Area.

3.0 DESCRIPTION/DIMENSIONS

The 124-F-6 Site consists of a septic tank and drain field.

SANITARY WASTE SITE (124-F-7)

1.0 LOCATION

The 124-F-7 Sanitary Waste Site is located in the 100-F Area.

2.0 PURPOSE/HISTORY

The 124-F-7 Sanitary Waste Site provided sanitary waste disposal. The site received unknown quantities of sanitary waste from 100-F Area buildings during 100-F Area operations.

3.0 DESCRIPTION/DIMENSIONS

The 124-F-7 Sanitary Waste Site consists of a septic tank and drain field.

188-F ASH DISPOSAL AREA (126-F-1)

1.0 LOCATION

The 188-F Ash Disposal Area is located in the 100-F Area.

2.0 PURPOSE/HISTORY

The 188-F Ash Disposal Area was used to dispose of ash from the 184-F Powerhouse during operation. Because part of the 188-F Ash Disposal Area was contaminated by effluent line leakage, it is considered contaminated.

3.0 DESCRIPTION/DIMENSIONS

The disposal area consists of a pit.

183-F CLEARWELLS (126-F-2)

1.0 LOCATION

The 183-F Clearwells are located in the 100-F Area.

2.0 PURPOSE/HISTORY

Originally, the 183-F Clearwells were used to store water for the Water Treatment Plant at the 100-F Area. Currently, this site is authorized to receive demolition waste, but not asbestos-containing materials.

3.0 DESCRIPTION/DIMENSIONS

The 183-F Clearwells are covered, reinforced concrete basins.

100-F BURNING PITS (128-F-1 AND 128-F-2)

1.0 LOCATION

The 100-F Burning Pits are located in the 100-F Area. The coordinates are N78500 and W29500.

2.0 PURPOSE/HISTORY

The 100-F Burning Pits were in service from 1945 to 1965. The 100-F Burning Pits were used for the disposal of non-radioactive combustible materials, such as paint waste, office waste, and chemical solvents.

3.0 DESCRIPTION/DIMENSIONS

The height of the 100-F Burning Pits is 126 m (413 ft), and the watertable is 11 m (36 ft). Each pit is 30.5 m by 30.5 m (100 ft by 100 ft) and 3.05 m (10 ft) deep.

SANITARY WASTE SITE (124-H-1)

1.0 LOCATION

The 124-H-1 Sanitary Waste Site is located in the 100-H Area.

2.0 PURPOSE/HISTORY

The 124-H-1 Sanitary Waste Site is used for sanitary waste disposal. The site received unknown quantities of sanitary waste from 100-H Area buildings during operation of the 100-H Area.

3.0 DESCRIPTION/DIMENSIONS

The 124-H-1 Sanitary Waste Site consists of a septic tank and a drain field.

SANITARY WASTE SITE (124-H-2)

1.0 LOCATION

The 124-H-2 Sanitary Waste Site is located in the 100-H Area.

2.0 PURPOSE/HISTORY

The 124-H-2 Sanitary Waste Site provides sanitary waste disposal. The site received unknown quantities of sanitary waste from 100-H Area buildings during operation of the 100-H Area.

3.0 DESCRIPTION/DIMENSIONS

The 124-H-2 Sanitary Waste Site consists of a septic tank and a drain field.

WASTE DISPOSAL SITE (124-H-3)

1.0 LOCATION

The 124-H-3 Sanitary Waste Site is located in the 100-H Area.

2.0 PURPOSE/HISTORY

The 124-H-3 Sanitary Waste Site provides sanitary waste disposal. The site received unknown quantities of sanitary waste from 100-H Area buildings during operation of the 100-H Area.

3.0 DESCRIPTION/DIMENSIONS

The 124-H-3 Site consists of a septic tank and a drain field.

SANITARY WASTE SITE (124-H-4)

1.0 LOCATION

The 124-H-4 Sanitary Waste Site is located in the 100-H Area.

2.0 PURPOSE/HISTORY

The 124-H-4 Sanitary Waste Site provides sanitary waste disposal. During operation of the 100-H Area, the 124-H-4 Sanitary Waste Site received unknown quantities of sanitary waste from 100-H Area buildings.

3.0 DESCRIPTION/DIMENSIONS

The 124-H-4 Sanitary Waste Site consists of a septic tank and a drain field.

188-H ASH DISPOSAL AREA (126-H-1)

1.0 LOCATION

The 188-H Disposal Area is located in the 100-H Area.

2.0 PURPOSE/HISTORY

The 188-H Disposal Area was used for the disposal of ashes from the 184-H Powerhouse during operation.

3.0 DESCRIPTION/DIMENSIONS

The 188-H Disposal Area consists of a pit.

183-H CLEARWELLS (126-H-2)

1.0 LOCATION

The 183-H Clearwells are located in the 100-H Area.

2.0 PURPOSE/HISTORY

Originally, the 183-H Clearwells were used to store water for the 183-H Water Treatment Facility. Currently, the clearwells are authorized to receive demolition waste, except for asbestos-containing material.

3.0 DESCRIPTION/DIMENSIONS

The 183-H Clearwells are covered reinforced concrete basins.

100-H BURNING PITS (128-H-1)

1.0 LOCATION

The 100-H Burning Pits are located in the 100-H Area, and the coordinates are N97850 and W51300.

2.0 PURPOSE/HISTORY

From 1945 to 1965, the 100-H Burning Pits were used for the disposal of non-radioactive combustible materials, such as paint waste, office waste, and chemical solvents.

3.0 DESCRIPTION/DIMENSIONS

The elevation of the 100-H Burning Pits is 128 m (420 ft), and the watertable is 13 m (42 ft). The burning pit is 30 m by 30 m (100 ft by 100 ft), and 3 m (10 ft) deep.

SANITARY WASTE SITE (124-K-1)

1.0 LOCATION

The 124-K-1 Sanitary Waste Site is located in the 100-K Area.

2.0 PURPOSE/HISTORY

The 124-K-1 Sanitary Waste Site provides sanitary waste water disposal. The 124-K-1 Sanitary Waste Site received waste from 1955 to present. The unit receives 1,987 l/day (525 gal/day) of sanitary sewage from the 1701-K Badgehouse, the 1720-K Administration Building, and the 1720-K Trailer.

3.0 DESCRIPTION/DIMENSIONS

The site consists of a septic tank and drain field.

SANITARY WASTE SITE (124-K-2)

1.0 LOCATION

The 124-K-2 Sanitary Waste Site is located in the 100-K Area.

2.0 PURPOSE/HISTORY

The 124-K-2 Sanitary Waste Site provides sanitary waste water disposal. The unit receives 6,625 l/day (1,750 gal/day) of sanitary sewage from the 1717-K Maintenance Shop.

3.0 DESCRIPTION/DIMENSIONS

The 124-K-2 Sanitary Waste Site consists of a septic tank and a drain field.

100-K GRAVEL PIT (126-K-1)

1.0 LOCATION

The 100-K Gravel Pit is located in the 100-K Area, east of the 100-K Burial Ground (118-K-1).

2.0 PURPOSE/HISTORY

The 100-K Gravel Pit was created as a result of the construction on the 100-K Area. It has been authorized to receive demolition wastes, including asbestos-containing materials.

3.0 DESCRIPTION/DIMENSIONS

No dimensions available.

100-K BURNING PIT (128-K-1)

1.0 LOCATION

The 100-K Burning Pit is located in the 100-K Area. The coordinates are N(K)3500 and W(K)3500.

2.0 PURPOSE/HISTORY

From 1955 to 1971, the 100-K Burning Pit was used for the disposal of non-radioactive combustible materials, such as paint waste, office waste, and chemical solvents.

3.0 DESCRIPTION/DIMENSIONS

The height of the 100-K Burning Pit is 137 m (450 ft), and the watertable is 16.5 m (54 ft). The surface dimensions of the pit are 30.5 m by 30.5 m (100 ft by 100 ft). The pit is 3.05 m (10 ft) deep.

1717-K GASOLINE STORAGE TANK (130-K-1)

1.0 LOCATION

The 1717-K Gasoline Storage Area is located in the 100-K Area, underground and northwest of 1717-K.

2.0 PURPOSE/HISTORY

The 1717-K Gasoline Storage Area provides nonhazardous material storage of gasoline.

3.0 DESCRIPTION/DIMENSIONS

The 1717-K Gasoline Storage Area is an underground storage tank that stores gasoline.

1717-K WASTE OIL STORAGE TANK (130-K-2)

1.0 LOCATION

The 1717-K Waste Oil Storage Tank, which is located in the 100-K Area, is underground and northwest of the 1717-K Building.

2.0 PURPOSE/HISTORY

The 1717-K Waste Oil Storage Tank provided nonhazardous material storage of used motor oil. The tank was in service from 1955 to 1971.

3.0 DESCRIPTION/DIMENSIONS

The 1717-K Waste Oil Storage Tank holds 1,893 l (500 gal) of oil.

182-K EMERGENCY DIESEL OIL STORAGE TANK (130-K-3)

1.0 LOCATION

The 182-K Emergency Diesel Oil Storage Tank is located in the 100-K Area, immediately north of the 182-K Building.

2.0 PURPOSE/HISTORY

The 182-K Emergency Diesel Oil Storage Tank provided nonhazardous material storage for diesel oil. The tank was in service from 1955 to 1971.

3.0 DESCRIPTION/DIMENSIONS

The 182-K Emergency Diesel Oil Storage Tank consists of two tanks, each with a 66,245 l (17,500 gal) capacity.

183-KE FILTER WATER FACILITY DRY WELL (120-KE-1)

1.0 LOCATION

The 183-KE Filter Water Facility Dry Well is located in the 100-K Area. The coordinates are N(K)3150 and W (K)4500.

2.0 PURPOSE/HISTORY

From 1995 to 1971, the 183-KE Filter Water Facility Dry Well received sulfuric acid sludge that was removed from sulfuric acid storage tanks.

3.0 DESCRIPTION/DIMENSIONS

The 183-KE Filter Water Facility Dry Well has a height of 141 m (464 ft), and the watertable is 21 m (68 ft). The dry sump is 1.2 m (4 ft) long by 1.2 m (4 ft) wide and 1.2 m (4 ft) deep, with a wooden cover.

4.0 REFERENCE

Drawings: H-3-57210

183-KE FILTER WATER FACILITY FRENCH DRAIN (120-KE-2)

1.0 LOCATION

The 183-KE Filter Water Facility French Drain is located in the 100-K Area, and the coordinates are N(K)3195 and W (K)4480.

2.0 PURPOSE/HISTORY

The 183-KE Filter Water Facility French Drain Site received sulfuric acid sludge, which was removed from sulfuric acid storage tanks, from 1955 to 1971.

3.0 DESCRIPTION/DIMENSIONS

The 183-KE Filter Water Facility French Drain has an elevation of 141 m (464 ft), and a watertable that is 21 m (68 ft). The french drain structure is 0.9 m (3 ft) in diameter and 0.9 m (3 ft) deep, with an open bottom.

4.0 REFERENCE

Drawings: H-3-57210

183-KE FILTER WATER FACILITY TRENCH (120-KE-3)

1.0 LOCATION

The 183-KE Filter Water Facility Trench is located in the 100-K Area. The coordinates are N(K)3175, W (K)4475.

2.0 PURPOSE/HISTORY

From 1955 to 1971, the 183-KE Filter Water Facility Trench received sulfuric acid sludge, which was removed from sulfuric acid storage tanks.

3.0 DESCRIPTION/DIMENSIONS

The height of the 183-KE Filter Water Facility Trench is 141 m (464 ft), and the watertable is 21 m (68 ft) deep. The drainage trench is 12 m (40 ft) long, 0.9 m (3 ft) wide, and 0.6 to 0.9 m (2 to 3 ft) deep. The trench was lined with sand and the sludge-water slurry was allowed to drain.

4.0 REFERENCE

Drawings: H-3-57210

SULFURIC ACID STORAGE TANK (120-KE-4)

1.0 LOCATION

The 120-KE-4 Sulfuric Acid Storage Tank is located in the 100-K Area.

2.0 PURPOSE/HISTORY

The 120-KE-4 Sulfuric Acid Storage Tank is an inactive hazardous material storage tank used to store sulfuric acid. The tank was in service from 1955 to 1971. The supply pipe from the tank to the point of use inside the 183-KE Building developed a gradual slow leak. Before the leak was detected, an unknown quantity of sulfuric acid leaked into the ground at the northeast corner of 183-KE.

3.0 DESCRIPTION/DIMENSIONS

The tank is an above-ground 38,300 l (10,109 gal) tank located at the southeast corner of 183-KE Headhouse.

SULFURIC ACID STORAGE TANK (120-KE-5)

1.0 LOCATION

The 120-KE-5 Sulfuric Acid Storage Tank is located in the 100-K Area.

2.0 PURPOSE/HISTORY

The 120-KE-5 Sulfuric Acid Storage Tank was in service from 1955 to 1971 as an inactive hazardous waste material storage tank for sulfuric acid. There is no potential for release of hazardous constituents. The tank has been drained and neutralized.

3.0 DESCRIPTION/DIMENSIONS

The 120-KE-5 Sulfuric Acid Storage Tank, is an above ground 38,300 l (10,109 gal) tank located at the southeast corner of 183-KE Headhouse.

EMERGENCY DIESEL OIL STORAGE (130-KE-1)

1.0 LOCATION

The 130-KE-1 Emergency Diesel Oil Storage is located in the 100-K Area, adjacent to the 105-KE Ventilation Stack.

2.0 PURPOSE/HISTORY

The 130-KE-1 Emergency Diesel Oil Storage, which provided hazardous material storage of diesel fuel, was in service from 1955 to 1971.

3.0 DESCRIPTION/DIMENSIONS

The 130-KE-1 Emergency Diesel Oil Storage is a 7,571 l (2,000 gal) tank.

OIL STORAGE TANK (130-KE-2)

1.0 LOCATION

The 166-KE Oil Storage Tank is located in the 100-K Area, adjacent to the 165-KE Boiler House.

2.0 PURPOSE/HISTORY

The 166-KE Oil Storage Tank provided inactive waste material storage and stored oil for the 165-KE Boilers, from 1955 to 1971. The tank was also used to store Bunker C oil for the 100-N Area from 1981 to 1985.

3.0 DESCRIPTION/DIMENSIONS

The 166-KE Oil Storage Tank consists of two underground, reinforced concrete storage bunkers, two day tanks, and a pumphouse, which is a concrete structure. The storage bunkers are each 13 m (44 ft) wide by 35 m (116 ft) long by 6 m (21 ft) deep. They have a capacity of 6,245,900 l (1,650,000 gal).

4.0 REFERENCE

Drawing: H-1-70413

183-KW FILTER WATER FACILITY DRY WELL (120-KW-1)

1.0 LOCATION

The 183-KW Filter Water Facility Dry Well is located in the 100-K Area. The coordinates are N(K)3180, W(K)6590.

2.0 PURPOSE/HISTORY

The 183-KW Filter Water Facility Dry Well received sulfuric acid sludge, which was removed from sulfuric acid storage tanks. The 183-KW Filter Water Facility Dry Well was in service from 1955 to 1970.

3.0 DESCRIPTION/DIMENSIONS

The height of the 183-KW Filter Water Facility Dry Well is 141 m (464 ft), and the watertable is 22 m (72 ft). The dry sump is 1 m (4 ft) long by 1 m (4 ft) wide, and 1 m (4 ft) deep, with a wooden cover.

4.0 REFERENCE

Drawings: H-3-47210

183-KW FILTER WATER FACILITY FRENCH DRAIN (120-KW-2)

1.0 LOCATION

The 183-KW Filter Water Facility French Drain is located in the 100-K Area. The coordinates are N(K)3100, W(K)6510.

2.0 PURPOSE/HISTORY

The 183-KW Filter Water Facility French Drain received sulfuric acid sludge that was removed from sulfuric acid storage tanks. The facility was in service from 1955 to 1970.

3.0 DESCRIPTION/DIMENSIONS

The 183-KW Filter Water Facility French Drain has a height of 141 m (464 ft), and the watertable is 22 m (72 ft). The french drain is 1 m (3 ft) in diameter, and 1 m (3 ft) deep, with an open bottom.

4.0 REFERENCE

Drawings: H-3-47210

SULFURIC ACID STORAGE TANK (120-KW-3)

1.0 LOCATION

The 120-KW-3 Sulfuric Acid Storage Tank is located in the 183-KW Headhouse.

2.0 PURPOSE/HISTORY

The 120-KW-3 Sulfuric Acid Storage Tank was used to store sulfuric acid, and was in service from 1955 to 1971. The supply pipe from the tank, which ran to the point of use inside the 183-KW Building, developed slow leaks that deposited an unknown amount of sulfuric acid in the ground between the tank and the building.

3.0 DESCRIPTION/DIMENSIONS

The 120-KW-3 Sulfuric Acid Storage Tank is an above-ground 38,300 m (10,109 gal) capacity tank, located at the southeast corner of 183-KW Headhouse.

SULFURIC ACID STORAGE TANK (120-KW-4)

1.0 LOCATION

The 120-KW-4 Sulfuric Acid Storage Tank is located in the 100-K Area and above ground at the southeast corner of the 183-KW Headhouse.

2.0 PURPOSE/HISTORY

The 120-KW-4 Sulfuric Acid Storage Tank was in service from 1955 to 1971 for storage of sulfuric acid.

3.0 DESCRIPTION/DIMENSIONS

The 120-KW-4 Sulfuric Acid Storage Tank is an above ground 38,300 l (10,109 gal) capacity tank.

SANITARY WASTE SITE (124-KW-1)

1.0 LOCATION

The 124-KW-1 Sanitary Waste Site is located in the 100-K Area.

2.0 PURPOSE/HISTORY

The 124-KW-1 Sanitary Waste Site provides sanitary waste water disposal.

3.0 DESCRIPTION/DIMENSIONS

The 124-KW-1 Sanitary Waste Site consists of a septic tank and a drain field. The unit receives 2,650 l/day (700 gal/day) of sanitary sewage from the 105-KW Reactor Building, the 115-KW Gas Recirculation Building, and the 165-KW Powerhouse.

SANITARY WASTE SITE (124-KW-2)

1.0 LOCATION

The 124-KW-2 Sanitary Waste Site is located in the 100-K Area.

2.0 PURPOSE/HISTORY

The 124-KW-2 Sanitary Waste Site provided sanitary waste water disposal.

3.0 DESCRIPTION/DIMENSIONS

The 124-KW-2 Sanitary Waste Site consists of a septic tank and drain field. The unit received unknown amounts of sanitary sewage from the 183-KW Water Treatment Facility.

105-KW EMERGENCY DIESEL OIL STORAGE (130-KW-1)

1.0 LOCATION

The 105-KW Emergency Diesel Oil Storage is located in the 100-K Area, adjacent to the 105-KW Ventilation Stack.

2.0 PURPOSE/HISTORY

The 105-KW Emergency Diesel Oil Storage was used to store diesel fuel, and was in service from 1955 to 1971.

3.0 DESCRIPTION/DIMENSIONS

The 105-KW Emergency Diesel Oil Storage is a 7,571 l (2,000 gal) capacity storage tank.

166-KW OIL STORAGE FACILITY (130-KW-2)

1.0 LOCATION

The 166-KW Oil Storage Facility is located in the 100-K Area.

2.0 PURPOSE/HISTORY

The 166-KW Oil Storage Facility consists of Bunker C fuel oil bunkers and a pumphoom. The pumphoom transfers fuel oil to day tanks, and recirculates the fuel oil through heat exchangers, using boiler steam for heat.

3.0 DESCRIPTION/DIMENSIONS

The 166-KW Oil Storage Facility consists of two underground concrete storage bunkers, two day tanks, and a pumphoom. The bunkers are each 13 m (44 ft) wide, by 35 m (116 ft) long, by 6.4 m (21 ft) deep. The pumphoom is a concrete structure with a capacity of 6,245,910 l (1,650,000 gal).

4.0 REFERENCE

Drawing: H-1-70413

216-A-524 WEIR

1.0 LOCATION

The 216-A-524 Weir is located in the 200 East Area, within the 216-A-524 Crib, and the coordinates are N42300 and W46900.

2.0 PURPOSE/HISTORY

The 216-A-524 Weir was built in 1957 to regulate the flow of contaminated condensate from waste storage tanks in the 241-A and 241-AX Tank Farms. This weir was in service until the 216-A-24 Crib was rendered inactive in January 1966.

3.0 DESCRIPTION/DIMENSIONS

The 216-A-524 Weir is an underground liquid effluent control structure. The outside dimensions are 4.9 m (16 ft) by 2.4 m (8 ft) by 3.4 m (11 ft) deep. The walls and floors are 0.3-m (1-ft)-thick reinforced concrete, and the roof (ground level) is closed with two removable concrete cover slabs that are 15 cm (6 in.) thick.

The weir interior is divided vertically into three chambers by two concrete walls that are 284 cm (8 ft 6 in.) high, and 0.3 m (1 ft) thick. Piping includes a 41-cm (16-in.)-diameter steel inlet pipe, a 41-cm (16-in.)-diameter steel outlet pipe, and two 41-cm (16-in.)-diameter steel blanked off outlet stubs, with one a 5.1-cm (2-in.)-diameter steel bypass. Stop log and sluice gates are also present. Extending above ground are three stem gate valves, with handwheels for operating on sluice gates, and a filtered vent pipe.

4.0 REFERENCE

Drawing: H-2-56976, H-2-56977

241-B-361 SETTLING TANK

1.0 LOCATION

The 241-B-361 Settling Tank is located in the 200 East Area, and the coordinates are N43300 and W52900.

2.0 PURPOSE/HISTORY

The 241-B-361 Settling Tank was in service from April 1945 to September 1946. The 241-B-361 Settling Tank was part of the waste disposal system for low salt, alkaline, radioactive liquid wastes from cell washings collected in the 5-6W Cell, located in the 221-B Building and from the 224-B Building. Waste was discharged to the settling tank and overflowed into the 216-B-5 Reverse Well.

3.0 DESCRIPTION/DIMENSIONS

The 241-B-361 Settling Tank is a 6.1 m (20 ft) diameter, underground reinforced gunite tank. Eleven risers are visible above grade. One riser is equipped with a manual tape; a second riser contains two dip tubes; a third riser vents the tank; and the eight remaining risers are blanked off.

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241-U-361 SETTLING TANK

1.0 LOCATION

The 241-U-361 Settling Tank is located in the 200 West Area, and the coordinates are N37900 and W74200.

2.0 PURPOSE/HISTORY

The 241-U-361 Settling Tank was active from 1951 to 1957, and was used to receive and settle 224-U process and decontamination solutions. Overflow from the 241-U-361 Settling Tank was routed to 216-U-1 and 216-U-2 Cribs.

3.0 DESCRIPTION/DIMENSIONS

The 241-U-361 Tank is an underground settling tank constructed of reinforced 15 cm (6 in.)-thick concrete. The tank is 6.1 m (20 ft) in diameter, and 4.6 m (15 ft) deep. Several risers are visible above grade, one equipped with manual tape, and one with two dip tubes for liquid level measurement.

241-WR VAULT

1.0 LOCATION

The 241-WR Vault is located in the 200 West Area and the coordinates are N38900 and W72900.

2.0 PURPOSE/HISTORY

The 241-WR Vault was built for storage of uranyl nitrate hexahydrate (UNH) for feed to 221-U, and temporary storage for recovered HNO₃ and waste, before routing to tank farms and cribs. It was also used for thorium storage.

3.0 DESCRIPTION/DIMENSIONS

The 241-WR Diversion Station Vault is an underground concrete vault, 66 m (218 ft) by 20 m (66 ft) with an area of approximately 3,100 m² (10,235-ft²). The outside walls, floors, and roof (ground level) are 0.6-m (2-ft)-thick reinforced concrete.

The 241-WR Diversion vault is divided lengthwise into three sections. The hot tank section is 15 m (48 ft) deep and separated from the low-level waste sections by a 1-m (3-ft)-thick wall. The low-level waste tank section is 9 m (29 ft) deep. The pump pit section is 9 m (29 ft) deep and separated from the low-level section by a 0.6-m (2-ft)-thick wall. The hot tank section is divided into five cells, which are 7 m by 7 m by 0.3 m (24 ft by 24 ft by 1 ft) thick walls that each contain a 41,800 l (50,000 gal) stainless steel tank. The area above the hot tanks contains a pipe tunnel, an equipment pit, and a sample pit. The low-level section is divided into 4 cells, which are 7-m by 7-m by 0.3-m (24-ft by 24-ft by 1-ft)-thick walls, that each contain a 41,800 l (50,000 gal) stainless steel tank. The pump pit section contains pumps and piping for the low-level tanks.

The 296-U-7 stack is also located in the vault area.

4.0 REFERENCE

Drawings: H-2-40061, H-2-40109

241-Z-361 SETTLING TANK

1.0 LOCATION

The 241-Z-361 settling tank is located in the 200 West Area and the coordinates are N39500 and W76600.

2.0 PURPOSE/HISTORY

The 241-Z-361 settling tank was built in 1949 to settle waste from the Z Plant process, the Analytical Laboratory, and the Development Laboratory, before routing to the 216-Z crib.

3.0 DESCRIPTION/DIMENSIONS

The 241-Z-361 settling tank is an underground, steel lined, concrete structure. The concrete reinforced walls are 0.6 m (2 ft) thick. The tank's inside dimensions are 8 m (26 ft) by 4 m (13 ft) by 5.8 (19 ft) high. Visible above grade are two manhole covers and frames, and several risers.

4.0 REFERENCE

Drawings: H-2-16024

244-UR WASTE DISPOSAL UNIT

1.0 LOCATION

The 244-UR Waste Disposal Unit is located in the 200 West Area, and the coordinates are N38400 and W75800.

2.0 PURPOSE/HISTORY

The 244-UR Waste Disposal Unit was built to store waste from U Plant operations.

3.0 DESCRIPTION/DIMENSIONS

The 244-UR Waste Disposal Unit is an underground concrete structure divided vertically into four sections. Each section houses a stainless steel tank and is divided horizontally to provide pump pits above the tanks. The pump pits contain pumps and piping used during liquid transfer.

The walls, floors, horizontal divisions, and roofs (ground level) are constructed of 0.61 m (2-ft)-thick reinforced concrete. The sumps are located in the sections occupied by tanks TK-UR-001, TK-UR-002, and TK-UR-003. The dimensions of the vault are approximately 27 m (90 ft) by 8 m (26 ft) wide with depth ranging from 9.75 m (32 ft) to 13 m (45 ft).

Tank TK-UR-001 is a 189,270 l (50,000 gal) slurry accumulator tank 6.1 m (20 ft) in diameter. Tanks TK-UR-002 and TK-UR-003 are identical 56,781 l (15,000 gal) blend tanks that are 4.3 m (14 ft) in diameter. TK-UR-004 is a process tank that is 3.05 m (10 ft) in diameter and 4.3 m (14 ft) high.

There are also above ground service facilities that include four instrument shelters, an inlet filter enclosure, and six risers used to measure liquid levels in tanks and sumps.

4.0 REFERENCE

Drawings: H-2-40199, H-2-4018

270-E CONDENSATE NEUTRALIZATION TANK

1.0 LOCATION

The 270-E Condensate Neutralization Tank is located in the 200 East Area. The coordinates are N42500 and W54700.

2.0 PURPOSE/HISTORY

The 270-E Condensate Neutralization Tank was constructed in 1952 to handle process condensate from B Plant. The tank was built in association with a chemical storage facility which has since been removed.

3.0 DESCRIPTION/DIMENSIONS

The 270-E Condensate Neutralization Tank is 3 m (9 ft) in diameter, 3 m (9 ft) high, and located 3 m (10 ft) below grade. It is constructed of stainless steel and has a 105-cm (41.5-in.)-diameter charging riser extended from the top of the tank 4 m (13.5 ft), with 1.07 m (3.5 ft) visible above grade. There is also a 15-cm (6-in.)-diameter sample riser that extends 18 cm (7 in.) above grade.

4.0 REFERENCE

Drawings: H-2-43118

276-S-141 SOLVENT STORAGE TANK

1.0 LOCATION

The 276-S-141 Solvent Storage Tank is located in the 200 West Area. The coordinates are N34850 and W74200.

2.0 PURPOSE/HISTORY

The 276-S-141 Solvent Storage Tank was built for temporary storage of contaminated solvent (hexone) from the REDOX process, prior to disposing as waste through the 276-S Solvent Handling Building.

3.0 DESCRIPTION/DIMENSIONS

The 276-S-141 Solvent Storage Tank is a 87,064 l (23,000 gal) solvent storage tank, identical to 276-S-142 Solvent Storage Tank.

The 276-S-141 Solvent Storage Tank was constructed of 1 cm (3/8 in.) carbon steel. The tank was placed horizontally, side-by-side with tank 276-S-142, underground and north of the 276-S Building. The tank is 8.5 m (28 ft) long and 3.5 m (11.5) in diameter. Above ground facilities include a pumping station, emergency shower, and water connection.

4.0 REFERENCE

Drawings: H-2-5368

276-S-142 SOLVENT STORAGE TANK

1.0 LOCATION

The 276-S-142 Solvent Storage Tank is located in the 200 West Area. The coordinates are N34850 and W74200.

2.0 PURPOSE/HISTORY

The 276-S-142 Solvent Storage Tank was built for temporary storage of contaminated solvent (hexone) from the REDOX process prior to disposal as waste through the 276-S Solvent Handling Building.

3.0 DESCRIPTION/DIMENSIONS

The 276-S-142 Solvent Storage Tank is a 87,064 l (23,000 gal) solvent storage tank, identical to the 276-S-141 Solvent Storage Tank.

Tank 276-S-142, which is constructed of 1-cm (3/8-in.)-carbon steel, is located underground, north of the 276-S Building. Tank 276-S-142 is positioned horizontally and adjacent to tank 276-S-141. The tank is 8.5 m (28 ft) long and 3.5 (11.5 ft) in diameter. The above ground facilities include a pumping station, emergency shower, and water connection.

4.0 REFERENCE

Drawings: H-2-5368

2904-S-160 WEIR

1.0 LOCATION

The 2904-S-160 Weir is located in the 200 West Area. The coordinates are N33450 and W76750.

2.0 PURPOSE/HISTORY

The 2904-S-160 Weir was built in 1954 to divert process vessel cooling water and steam condensate from Building 202-S to Pond 216-S-17, 216-S-6, or 216-S-16.

3.0 DESCRIPTION/DIMENSIONS

The 2904-S-160 Weir is a below grade pentagonal structure consisting of 0.3-m (1-ft)-thick reinforced concrete walls, floors, and roof. The structure is 2.7 m (9 ft) high, and the two walls are 163 cm (5 ft, 4 in.). The other walls are 1.5 m (5 ft). The vitrified clay inlet pipes measure 74 cm (6 ft, 2 in.) in diameter.

There is a manhole and two hand wheels for sluice gate operation visible above grade.

4.0 REFERENCE

Drawings: H-2-2599

2904-S-170 WEIR

1.0 LOCATION

The 2904-S-170 Weir is located in the 200 West Area. The coordinates are N34400 and W74300.

2.0 PURPOSE/HISTORY

The 2904-S-170 Weir was built in 1954 to regulate and measure the process waste flow from S Plant before routing to liquid waste disposal sites.

3.0 DESCRIPTION/DIMENSIONS

The 2904-S-170 Weir is an underground concrete structure 478 cm (15 ft 8 in.) by 142 cm (4 ft 8 in.) by 328 cm (10 ft 9 in.) high. The walls, floor, and roof are 25 cm (10 in.) thick.

The piping includes one inlet and one outlet pipe that are both made of 76 cm (30 in.) in diameter vitrified clay pipe.

Two float well caps, a flow meter, and a manhole cover are visible above grade. The 2904-SA Building covers 97 cm (3 ft 2 in.) of the weir's south end.

4.0 REFERENCE

Drawings: H-2-2598

2904-2-171 WEIR

1.0 LOCATION

The 2904-2-171 Weir is located in the 200 West Area. The coordinates are N33200 and W77800.

2.0 PURPOSE/HISTORY

The 2904-S-171 Weir was built in 1954 to measure and regulate flow of process waste being routed to 216-S-6 Crib.

3.0 DESCRIPTION/DIMENSIONS

The 2904-S-171 Weir, a below-grade concrete structure, has outside dimensions that are 100 cm (8 ft 4 in.) by 332 cm (12 ft 18 in.) by 309 cm (10 ft 1.5 in.) high. The walls, floors, and roof are 25 cm (10 in.) thick. There are float wells attached vertically to the north and south outside walls of the weir. The float wells are 41 cm (16 in.) diameter metal pipes centered in 71-cm (2-ft 4-in.)-square concrete columns.

The piping includes an 46-cm (18-in.)-diameter vitrified clay inlet pipe, and a 46-cm (18-in.)-diameter galvanized corrugated metal outlet pipe.

Visible above grade are the stem valve with a handwheel to operate the weir sluice gates, flow meter, vent riser, and manhole cover.

4.0 REFERENCE

Drawings: H-2-2595

2904-S-172 WEIR

1.0 LOCATION

The 2904-S-172 Weir is located in the 200 West Area. The coordinates are N33200 and W76800.

2.0 PURPOSE/HISTORY

The 2904-S-172 Weir was built in 1956 to divert the 202-S process vessel cooling water and steam condensate to the 216-S-16 ditch.

3.0 DESCRIPTION/DIMENSIONS

The 2904-S-172 Weir is an underground concrete structure 416 cm (13 ft 8 in.) by 224 cm (7 ft 4 in.) by 224 cm (7 ft 4 in.) high. The walls, floors, and roof are 25 cm (10 in.) thick.

Float wells, which consists of a 41-cm (16-in.)-diameter pipe centered in a 71-cm (2-ft 4-in.)-concrete column, are attached vertically to the north and south outside walls of the structure.

4.0 REFERENCE

Drawings: H-2-30268

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