Department of Energy

Oak Ridge Operations Office
P.O. Box 2001
Oak Ridge, Tennessee 37831—

May 4, 2004

Multiple Addresses

NATIONAL HISTORIC PRESERVATION ACT, SECTION 106 COMPLIANCE – FINAL MEMORANDUM OF AGREEMENT FOR DEMOLITION OF 108 BUILDINGS/STRUCTURES AT THE EAST TENNESSEE TECHNOLOGY PARK

Enclosed for your information is the fully ratified Memorandum of Agreement (MOA) for the Demolition of 108 Buildings/Structures at the East Tennessee Technology Park (ETTP). The MOA was developed as a result of consultation meetings held over the past few months and was approved by the State Historic Preservation Officer on April 12, 2004. Also enclosed is the Project Summary, Section 106 Archaeological and Historic Review (AHR) for the Demolition of 108 Buildings/Structures Located at the ETTP, Oak Ridge Reservation, Roane County, Tennessee. The AHR provides information pertaining to the project and includes descriptions of the buildings scheduled for demolition.

The Department of Energy appreciates the time and effort of the consulting parties in development of this MOA. If you have any questions or need additional information, please telephone me at 865-576-0273.

Sincerely,

James L. Elmore

for Gary S. Hartman
DOE ORO Cultural Resources
Management Coordinator

Enclosures

See Page 2 for cc's.

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cc w/enclosures:
James Bird, Eastern Band of Cherokee Indians, Cultural Resources/THPO
Susan Gawarecki, ORR Local Oversight Committee
Connie Jones, EPA Region 4
Cindy Kelly, Atomic Heritage Foundation
Thomas McCulloch, Advisory Council on Historic Preservation
Norman Mulvenon, Oak Ridge Site Specific Advisory Board
John Owsley, TDEC DOE Oversight Office
Angel Perkey, TDEC DOE Oversight Office
Steve Stow, American Museum of Science and Energy
Joe Valentino, Executive Director, Oak Ridge Convention & Visitors Bureau
William J. Wilcox, Jr., 412 New York Ave., Oak Ridge, TN 37830
Lydia Birk, Bldg. K-1580, MS 7131, ETTP
Jennifer Dixon, Bldg. 9116, MS 8098, Y-12
Greg Eidam, Bldg. K-1030, MS 7313, ETTP
Steve Goodpasture, CDM, Bldg. K-1007, MS 7240, ETTP
James Hall, Bldg. 5500, MS 6395, ORNL
Tony Poole, Bldg. K-1320, MS 7234, ETTP
Mick Wiest, Bldg. 9116, MS 8098, Y-12
Skip Gosling, HR-76, HQ/FORS
Milt Johnson, SC-3, HQ/FORS
Gerald Boyd, M-1, ORO
Robert Brown, M-3, ORO
Bill Cahill, EM-911, ORO
Wendy Cain, EM-911, ORO
Nancy Carnes, CC-10, ORO
Katatra Day, SE-30-1, ORO
Steve McCracken, EM-90, ORO
Donna Perez, EM-911, ORO
Walter Perry, M-4, ORO
Bob Poe, SE-30, ORO
Sheila Thornton, SE-30-1, Parallax
EC Document Center, K-1007, MS 7240, ETTP
DOE/ORO Information Center

Multiple Addresses:

Dr. Joseph Y. Garrison
Tennessee Historical Commission
Tennessee Department of Environment and Conservation
2941 Lebanon Road
Nashville, TN 37243-0442

Dr. Amy S. Fitzgerald
City of Oak Ridge
P.O. Box 1
Oak Ridge, TN 37831-0001

Mr. Lloyd Stokes
Oak Ridge Heritage and Preservation Association
131 Orchard Lane
Oak Ridge, TN 37830

Enclosure 1

MEMORANDUM OF AGREEMENT
BETWEEN THE U.S. DEPARTMENT OF ENERGY
OAK RIDGE OPERATIONS OFFICE
AND THE
TENNESSEE STATE HISTORIC PRESERVATION OFFICE
PURSUANT TO
36 CFR PART 800.6(b)(1)(iv)
REGARDING THE
DEMOLITION OF 108 BUILDINGS/STRUCTURES AT THE
EAST TENNESSEE TECHNOLOGY PARK (ETTP) (Formerly K-25 Site)
ON THE OAK RIDGE RESERVATION, ROANE COUNTY, TENNESSEE

WHEREAS the U.S. Department of Energy Oak Ridge Operations Office (DOE ORO) proposes to decontaminate and demolish 108 buildings/structures and associated appurtenances located at the East Tennessee Technology Park (ETTP) (see Attachment 1), formerly known as the K-25 Site. Demolition of these buildings/structures located at the ETTP are presently proposed in the Draft ETTP Building Disposition Plan dated December 2000; and

WHEREAS demolition of 108 buildings/structures and associated appurtenances at the ETTP, which is the subject of this Memorandum of Agreement (MOA), is as described in the document entitled, *Project Summary Section 106 Archeological and Historical Review (AHR) for Demolition of 108 Buildings/Structures Located at the East Tennessee Technology Park, Oak Ridge Reservation, Roane County, Tennessee;* and

WHEREAS, in consultation with the Tennessee State Historic Preservation Office (SHPO), DOE ORO has established the area of potential effect of the undertaking as defined at 36 CFR 800.16(d) to be the K-25 Site Main Plant and Powerhouse Historic Districts, and these 108 buildings/structures are located within or in close proximity to the boundaries of the K-25 Site Main Plant Historic District and the Powerhouse Historic Districts located on the Oak Ridge Reservation (ORR) in Roane County, Tennessee; and

WHEREAS DOE ORO has determined that the demolition of these 108 buildings/structures at the ETTP will have an adverse effect on the historical character of these buildings/structures as well as on the K-25 Site Main Plant and Powerhouse Historic Districts; and

WHEREAS in 1998 DOE ORO entered into an MOA with the Tennessee SHPO to, among other actions, decontaminate and decommission, remove, recycle, and/or dispose of gaseous diffusion processing equipment in Buildings K-29, K-31 and K-33, with subsequent modification by agreement of the Tennessee SHPO on October 3, 2001; and

WHEREAS the term "consulting parties to this MOA" pursuant to 36 CFR Part 800.6(c)(3) means DOE ORO, the Tennessee SHPO, City of Oak Ridge, Oak Ridge Heritage and Preservation Association, the Oak Ridge Reservation Local Oversight Committee, and the Oak Ridge Site-Specific Advisory Board; signatory parties to this MOA are DOE ORO and the Tennessee SHPO, each of which has authority under 36 CFR 800.7(a) to terminate the consultation process; concurring parties include the City of Oak Ridge and the Oak Ridge Heritage and Preservation Association; and

WHEREAS DOE ORO pursuant to 36 CFR 800.4(c) and in consultation with the State Historic Preservation Officer (SHPO), has determined that ninety-nine of these buildings/structures and associated appurtenances are contributing properties to the K-25 Site Main Plant and Power House Historic Districts and that nine of these buildings/structures are eligible for inclusion in the National Register of Historic Places (National Register); and

WHEREAS DOE ORO has completed, in accordance with the existing MOA for the K-25 and K-27 buildings, an Architectural and Engineering (A&E) report that evaluates various preservation options related to the K-25 and K-27 buildings and other historical properties at ETTP, and nine buildings (K-1002, K-1003, K-1008-C, K-1019-5A, K-1021, K-1028-45, K-601, K-1024, and K-1101) have been identified in this A&E report as having potential for further evaluation in development of the site-wide alternative for ETTP; and

WHEREAS DOE ORO agrees to set aside the nine buildings listed below which are included in the 108 buildings covered in this MOA for a period of up to 12 months ending in April 2005. If, as a result of subsequent consulting party discussions, any of these nine buildings are eliminated from further consideration prior to April 2005, then this agreement will be documented in consulting party meeting minutes. Any of these nine buildings that are selected as necessary for interpretation of the K-25 site will be addressed in the future revision to the existing K-25/27 MOA. These buildings are:

- K-1002 Cafeteria
- K-1003 Dispensary
- K-1008 – C Change House
- K-1019-5A Portal Bus Station
- K-1021 Fire House
- K-1028-45 Gate House Portal 4
- K-601 Depleted Tails Removal Building
- K-1024 Filter Test Facility
- K-1101 Nitrogen and Air Plant Building

WHEREAS DOE ORO has consulted with the SHPO in accordance with Section 106 of the National Historic Preservation Act (NHPA), 16 U.S.C. § 470, and its implementing regulations (36 CFR Part 800) to resolve any adverse effects of demolition of 108 buildings/structures at the ETTP; and

WHEREAS DOE ORO intends to use the provision of this MOA to address applicable requirements of Section 110(b) of NHPA, 16 U.S.C. § 470h-2(b); and

NOW, THEREFORE, DOE ORO and the SHPO agree upon acceptance of this MOA and upon the decision by DOE ORO, to proceed with demolition of 108 buildings/structures at the ETTP; DOE ORO shall ensure that the following stipulations shall be implemented in order to take into account the effects of the undertaking on these historic properties.

STIPULATIONS

DOE ORO shall ensure the following measures are carried out:

1. Section 110 (b) Documentation

   a. A Project Summary including a map showing the location of the 108 buildings/structures to be demolished at the ETTP shall be provided to the SHPO and to the City of Oak Ridge and retained in the DOE ORO files.

   b. Full sets of black-and-white, 35-mm photographs in 5"x 7" format, appropriately labeled, documenting the design and current conditions and surrounding landscapes around these buildings/structures shall be provided to the SHPO and to the City of Oak Ridge and shall be retained in the DOE ORO files. These photographs shall be provided for view to any interested person demonstrating a research interest in such structures.

   c. Structural and architectural drawings documenting the details and layout of these buildings/structures shall be provided to the SHPO, and copies shall be retained in the DOE ORO files. These drawings shall be provided for view to any interested person demonstrating a research interest in such structures and architectural drawings.

2. Prior to demolition of the buildings included in this MOA, a process will be developed to address identification and collection of artifacts, and this process will be documented in consultation meeting minutes.

3. Resolving Objections

   a. Once the operational phase of this project has begun, should the SHPO object to activities relative to this project and pursuant to this MOA, the DOE ORO shall consult with the objecting party to resolve the objection. All actions or facilities under this MOA that are not the subject of the objection shall remain unchanged.

   b. If DOE ORO determines that the objection cannot be resolved, DOE ORO shall forward all documentation relevant to the dispute to the Advisory Council on Historic Preservation (Council). Within 30 days of receipt of this documentation, the Council will either

      i. Provide DOE ORO with recommendations which DOE ORO will take into account when reaching a final decision regarding the dispute; or

      ii. Notify DOE ORO that it will comment pursuant to 36 CFR 800.7(c), and proceed to comment. Any such comment will be taken into account by DOE ORO in accordance with 36 CFR 800.7(c)(4) when reaching a final decision regarding the dispute.

   c. Should the Council not exercise one of the above options within 30 days after receipt of all pertinent documentation, DOE ORO may assume the Council's concurrence in its proposed response to the objection.

4. Administrative Stipulations

a. Alterations to Project Documents. DOE ORO shall not alter any plan, scope of service, or other document that has been reviewed and commented on pursuant to this MOA, except to finalize the documents commented on in the draft, without first affording the SHPO the opportunity to review the proposed change(s) and determine whether it shall require this MOA to be amended. If one or more of the above parties determine that an amendment is needed, the parties of the MOA shall consult in accordance with 36 CFR 800.6(c)(7) to consider such an amendment.

b. Amendments. Any party to this MOA may propose to DOE ORO that the MOA be amended, whereupon DOE ORO shall consult with other parties to this MOA to consider such an amendment; 36 CFR 800.6(c)(7) shall govern the execution of any such amendment.

c. Termination.

i. If DOE ORO determines that it cannot implement the terms of this MOA, or if the SHPO determines the MOA is not being properly implemented, DOE ORO or the SHPO may propose to the other parties to this MOA that it be terminated.

ii. The party proposing to terminate this MOA shall notify all parties to this MOA explaining the reasons for termination and affording them at least 30 days to consult and seek alternatives to termination.

Should such consultation fail and the MOA be terminated, DOE ORO shall either consult in accordance with 36 CFR 800.6(a) to develop a new MOA or request the comments of the Council pursuant to 36 CFR 800.7(c).

Execution of this MOA by the DOE ORO and the SHPO and implementation of its terms serve as evidence that DOE ORO has afforded the SHPO an opportunity to comment on the 108 buildings/structures demolition project at the ETTP in which ninety-nine buildings/structures are contributing properties to the K-25 Site and Power House Historic Districts and nine buildings/structures are eligible for inclusion in the National Register and that DOE has taken into account the effects of this project on these historic properties.

DEPARTMENT OF ENERGY

By: Gerald Boyd Date: 3/26/04

Gerald Boyd, Agency Official for Purpose of Section 106

TENNESSEE STATE HISTORIC PRESERVATION OFFICER

By: Herbert L. Harper, DSHPO Date: 4/12/04

CONCUR:

CITY OF OAK RIDGE

By: David R Bradshaw Date: 4-5-04

OAK RIDGE HERITAGE AND PRESERVATION ASSOCIATION

By: Kathleen Moore Date: 3/30/04

ATTACHMENT 1

	Facility Identification	Facility Name and Description
1	K-0029	Gaseous Diffusion Process Building
2	K-0031	Gaseous Diffusion Process Building
3	K-0033	Gaseous Diffusion Process Building
4	K-0101	K-25 Feed Purification Building
5	K-0131	K-27 Feed Purification Building
6	K-0300-C2	Coolant Pump House
7	K-0300-C3	Coolant Drying Plant
8	K-0413	K-27 Product Withdrawal
9	K-0631	Process Tails Facility
10	K-0633	Compressor Test Loop Facility
11	K-0705-A	Trash Barrier
12	K-0708-E	Scale Pit
13	K-709-A, -B, -C	Switchyard
14	K-0711	Welding Shop
15	K-0716	Poplar Creek Sampling Pier Station
16	K-0722	NEPA Division Building
17	K-0723	Boiler House
18	K-0726	Storage Building
19	K-0731	Switchhouse
20	K-0732-101	Sync Condenser Building
21	K-0732-102	Sync Condenser Building
22	K-0732-103	Sync Condenser Building
23	K-0733-A	Oil House
24	K-0733-D	K-731 West Valve House
25	K-0733-E	East Valve House
26	K-0761	K-31 Switchhouse
27	K-0802	K-25 RCW Pumphouse
28	K-0832	Recirculating Water Pump House
29	K-0833	RCW Return Lift Station
30	K-0892	Fire & Raw Cooling Water Pump House
31	K-0901	RCW Intake Facility
32	K-1004-A, -B, -C, and -E	Laboratories
33	K-1004-D	Laboratory
34	K-1004-F	Laboratory
35	K-1004-H	Gas Cylinder Storage Shed
36	K-1004-J	Radiochemical Laboratory
37	K-1004-L	High Pressure Pilot Plant
38	K-1008-A	Changehouse
39	K-1008-B	Changehouse
40	K-1008-D	Changehouse
41	K-1015	Laundry
42	K-1018	Emergency Generator Building
43	K-1020	Gatehouse 2 and Guard building
44	K-1024-A and -B	Instrument Building
45	K-1024-C	Guard House
46	K-1028-40	Gate House
47	K-1028-47	Portal 5
48	K-1028-49	Gate House Portal 10
49	K-1028-50	Portal 6
50	K-1028-54	Pay Point Portal 5
51	K-1028-55	Gate House Portal 7
52	K-1028-56	Portal 8
53	K-1028-57	Portal 2
54	K-1028-59	Gate House Portal 2 East
55	K-1028-64	Portal 9
56	K-1030	Electrical Main

57	K-1034	K-27 Office Building
58	K-1035	Main
59	K-1036	Main
60	K-1037	Indust Research Building
61	K-1037-C	Smelter House
62	K-1039	Telephone Exchange Building
63	K-1040	Fire Station 2
64	K-1045	Incinerator
65	K-1058	Materials Warehouse
66	K-1059	Building Material Warehouse
67	K-1098	Cement Storage House
68	K-1098-D	Equipment Shed
69	K-1098-E	Heat Treatment Facility
70	K-1102	Fan & Transfer Building
71	K-1102-A	Fan & Transfer Building
72	K-1102-B	Fan & Transfer Building
73	K-1132	HF Tank Storage Building
74	K-1133	HF Tank Storage Building
75	K-1134	Drum Storage Shed
76	K-1135	HF Tank Storage Building
77	K-1201	Compressor Building
78	K-1202	Transfer Sta & Tanks
79	K-1203-10	High Water Lift Station
80	K-1203-4	Chlorinator
81	K-1203-8	Sewage Lift Station
82	K-1204-10	Sewer Lift Station
83	K-1206-D	Firewater Tank & Valve
84	K-1207	Air Humidity Condenser
85	K-1231	K-27 Machine Shop
86	K-1400	Engineering Office Building
87	K-1401	Conditioning Building
88	K-1402	Control House
89	K-1414	Garage
90	K-1415	Material Storage Building
91	K-1416	Acid Storage Building
92	K-1420	Decontamination Building
93	K-1501	Heating Plant
94	K-1513	Pumphouse
95	K-1515	Sanitary Water Treatment Plant
96	K-1529	Sanitary Water Storage Tank
97	K-1530	Sanitary Water Storage Tank
98	K-762-204	K-31 Switchyard and Sync Condenser Building
99	Process Tie Lines	Process Tie Lines

Enclosure 2

PROJECT SUMMARY

SECTION 106 ARCHAEOLOGICAL AND HISTORICAL REVIEW (AHR) FOR THE DEMOLITION OF 108 BUILDINGS/STRUCTURES LOCATED AT THE EAST TENNESSEE TECHNOLOGY PARK, OAK RIDGE RESERVATION, ROANE COUNTY, TENNESSEE

PROPOSED ACTION: The U.S. Department of Energy, Oak Ridge Operations Office (DOE ORO), proposes to decontaminate, decommission, and demolish 108 buildings/structures and appurtenances located at the East Tennessee Technology Park (ETTP). The specific buildings/structures planned for demolition are described below. Of the 108 building/structures within the proposed project, 99 buildings/structures were identified in the *K-25 Site Cultural Resources Survey* (JE/EM-41) as being contributing properties to the K-25 Site Main Plant or Powerhouse Historic Districts, and nine buildings/structures were identified as being eligible for listing on the National Register of Historic Places.

Demolition of these buildings/structures is proposed to comply with the scheduled closure of ETTP. Some of these buildings/structures are a potential source of contamination, and source removal is necessary to protect human health and the environment. Degrading 50-year-old gaseous diffusion buildings and support buildings represent the principal threat. Unstable structures, roof integrity failures, intense rainfall events, and other natural phenomena increase the risk of uncontrolled releases of uranium and other contaminants to Poplar Creek, which feeds the Clinch River. The hazards posed to decontamination and decommissioning workers also grows every day with advancing building deterioration. Safety and photographic documentation of these facilities was provided previously to the State Historic Preservation Office (SHPO) in a report entitled *Safety Hazards Documentation and Photographs of Historic Properties Scheduled for Transfer or Decontamination and Decommissioning Located at the East Tennessee Technology Park in Oak Ridge, Tennessee (formerly K-25 Site)* (BJC/OR-1450).

LOCATION: These 108 properties are located on the DOE Oak Ridge Reservation in Roane County, Oak Ridge, Tennessee, at ETTP (formerly the K-25 Site) (Fig. 1).

DISCUSSION: All of these properties proposed for demolition were constructed between 1944 and 1954. These buildings/structures are in varying stages of deterioration and some of the facilities are structurally unsafe. Ninety-nine of the buildings/structures were identified in the *K-25 Site Cultural Resources Survey* (JE/EM-41), as contributing properties to the K-25 Site Main Plant and Powerhouse Historic Districts, and nine buildings/structures were identified as eligible properties for listing on the National Register of Historic Places. No archaeological resources will be affected, as these buildings will be demolished in place.

Of these 108 buildings/structures, nine were identified in an Architectural and Engineering (A&E) report, (prepared in accordance with the Memorandum of Agreement [MOA] for the Decontamination and Decommissioning of Buildings K-25 and K-27 [ratified July 17, 2003]) as having the potential for further evaluation in development of the site-wide alternative for ETTP. DOE ORO has agreed to set aside the nine buildings listed below which are included in the 108 buildings covered in the *Memorandum of Agreement Between the U.S. Department of Energy, Oak Ridge Operations Office, and the Tennessee State Historic Preservation Office Pursuant to*

36 CFR Part 800.6(b)(1)(iv) Regarding the Demolition of 108 Buildings/Structures at the East Tennessee Technology Park (ETTP) (Formerly K-25 Site) on the Oak Ridge Reservation, Roane County, Tennessee for a period of up to 12 months ending in April 2005. If, as a result of subsequent consulting party discussions, any of these nine buildings are eliminated from further consideration prior to April 2005, then this agreement will be documented in consulting party meeting minutes. Any of these nine buildings that are selected as necessary for interpretation of the K-25 Site will be addressed in a future revision to the MOA for the Decontamination and Decommissioning of Buildings K-25/K-27. These nine buildings are:

K-601	Depleted Tails Removal Building (K-25 Tails Withdrawal System Building)
K-1002	Cafeteria
K-1003	Dispensary
K-1008-C	Change House
K-1019-5A	Portal Bus Station (Bus Shelter Portal 5)
K-1021	Fire House (Fire Station)
K-1024	Filter Test Facility
K-1028-45	Gate House Portal 4
K-1101	Nitrogen and Air Plant Building (Air Conditioning Building)

The proposed action would consist of demolition of 108 facilities and associated appurtenances located at the ETTP as identified above in the Proposed Action Section of this Project Summary. A brief description of each of the 108 buildings/structures follows with the 99 buildings being listed first, followed by the nine buildings that require further evaluation.

Building K-0029

K-29 was placed into operation in 1951 for the isotopic enrichment of uranium by the gaseous diffusion process to meet the requirements of the new U.S. Department of Defense. The building was shut down in 1985. Parts of K-29 in units K-502-2 and K-502-3 were permanently shut down in 1968.

K-29 has only two floor levels. The process equipment is on the upper, or cell, floor level. The lower, or basement, level is the operating floor and includes the central control room. The lower level also contains the lubrication oil drain tanks, circulating pumps, coolers and filters, the R-114 coolant drain tanks and transfer pumps, electrical transformers and switchgear, air intake filter rooms, and ventilation fans and ducts. K-29 is a steel-framed structure with cement/asbestos siding. The building is 166 m (545 ft) long north to south, 159 m (522 ft) wide, and 20 m (65 ft) high. Roll-up metal doors and bi-parting, four-panel wooden doors are located in the withdrawal alley.

Building K-0031

K-31 was placed in operation in 1951 for the isotopic enrichment of uranium by the gaseous diffusion process. The building was shut down and placed on standby in 1985.

K-31 is constructed of steel with cement/asbestos composite siding. The building is 365 m (1,200 ft) long, 190 m (622 ft) wide, and 20 m (67 ft) high. The operating floor contains the process control room, offices, maintenance shops, and auxiliary equipment such as electrical

switchgear, ventilation fans and ducts, process control instrument consoles, lube oil storage tanks, chlorofluorocarbon evaporative coolant storage tanks, and vacuum pumps with chemical sorbent traps. UF_6 enrichment process equipment is located on the cell floor. The steel-framed second floor structure has corrugated transite siding and compartmentalized cells.

Building K-0033

K-33 was placed in operation in March 1954 for the isotopic enrichment of uranium by the gaseous diffusion process to meet the requirements of the U.S. Department of Defense. It was the largest and final section of the five-cascade Oak Ridge Gaseous Diffusion Plant (ORGDP). The building was shut down and placed on standby in 1985.

K-33 is constructed of steel with cement/asbestos composite siding. The building is 442 m (1,450 ft) long, 296 m (970 ft) wide, and 25 m (82 ft) high with 26 ha (64 acres) of floor space on two floors. The first floor is the operating floor and contains the process control room, offices, maintenance shops, and auxiliary equipment such as electrical switchgear, ventilation fans and ducts, process control instrument codes, lube oil storage tanks, chlorofluorocarbon evaporative coolant storage tanks, and vacuum pumps with chemical sorbent traps. UF_6 enrichment process equipment is located on the second or cell floor.

Building K-0101

This 6013 ft^2 four-story building is located inside the K-25 building courtyard. K-101 was built in 1945 to provide purified UF_6 to the K-25 enrichment cascade but was never used for that purpose. The building was used as a temporary UF_6 feed system and later as a coolant recovery facility before being placed on standby in the mid-1950s. In the mid-1970s the building was taken over for office space in conjunction with an adjacent centrifuge test facility. At that time, all of the original process equipment and piping were removed, and the interior surfaces were heavily painted to cover uranium contamination. K-101 is of reinforced concrete frame construction with masonry walls and partitions and a three-ply, built-up roof.

Building K-0131

The K-131 building, located north of K-27, was built in 1945 to purify UF_6 feed to the K-27 uranium enrichment building. However, purification equipment was deemed unnecessary and was never used. The K-131 building subsequently provided the UF_6 feed vaporization function for the enrichment cascade from 1946 until 1954. A wet-chemistry uranium recovery process was installed and operated in K-131 in the late 1940s and early 1950s. Uranium solutions from the decontamination of equipment used in processing Hanford reactor returns were also processed in the building. Maintenance offices and shops were later located in K-131. A centrifuge for processing treated sludge from the K-1231 area was operated in the late 1970s and early 1980s. The building is inactive.

Building K-0300-C2

K-300-C was built in 1945 as an auxiliary plant for drying and storage of coolant for the stage bank facilities of the original K-25 Uranium enrichment building. All four buildings in this facility are located within the K-25 building courtyard. K-300-C originally had three buildings that were

used as a coolant storage area. One of the buildings has been demolished. With the exception of one coolant storage tank, all pumps and equipment have been removed. The remaining tank is open. K-300-C2 coolant pump building is a one-story, concrete-floored building measuring approximately 16 x 19 x 22 ft. K-300-C-2 is badly deteriorated and near collapse.

Building K-0300-C3

K-300-C was built in 1945 as an auxiliary plant for drying and storage of coolant for the stage bank facilities of the original K-25 uranium enrichment building. All four buildings in this facility are located within the K-25 building courtyard. K-300-C originally had three buildings that were used as a coolant storage area. One of the buildings has been demolished. With the exception of one coolant storage tank, all pumps and equipment have been removed. The remaining tank is open. K-300-C3 contains two, two-story wood-framed buildings with transite siding and roofs.

Building K-0413

The K-413 product withdrawal facility, located north of K-29, is a two-story, clay-tile structure with gross floor area of 15,848 ft^2. K-413 originally housed an enriched uranium product withdrawal facility for the K-27 building. After the K-27 product stream was connected to the K-25 building in 1946, continuous operation of the K-413 facility was discontinued. However, intermittent operation of the cold trap product withdrawal system continued until the K-25 and K-27 units were shut down in 1964. The equipment in K-413 was subsequently removed, and three compression liquefaction withdrawal systems were installed and operated until the entire ORGDP cascade was put on standby in June 1985. K-413 is inactive.

Building K-0631

The K-631 Process Tails Facility is a steel-frame and concrete-block structure located at the northwest corner of K-27. The facility was built in 1946 to remove isotopically depleted gaseous UF_6 tails inventory from the cascade and convert it to liquid UF_6 by compression/liquefaction for transfer to transport cylinders; this process continued until 1962. Gas storage tanks in the building were used from the 1970s until 1985. The building is inactive.

Building K-0633

K-633, located west of K-27, is a steel-frame, corrugated transite structure with total floor area of 19,021 ft^2. K-633 was built in 1954 to test and evaluate the performance of gaseous diffusion process equipment under production conditions. Isotopically depleted gaseous UF_6 inventory was provided via the distribution header from the K-31 building. K-633 consists of four separate independent testing loops which have common auxiliary systems and utilities. These loops are located around the periphery of K-633 with the offices and main control room near the center. The No. 2 loop is located partly outside K-633. A small basement area under the southwest portion of loop No. 4 contains the lube oil storage tanks and supply pumps.

Building K-0705-A

Building K-0705-A is a below grade concrete structure that channels water. An MOA was approved for demolition in March 1994; however, the facility has not been demolished.

Building K-0708-E

K-708-E was used to weigh rail cars. K-708-E is a one-story frame building with a gabled roof. The walls and roof are made of corrugated transite. The original, wooden, double-hung windows have been replaced with aluminum.

Building K-0709-A, -B, & -C

K-709 contains some surplus electrical equipment. The electrical equipment in K-709 was disconnected in 1962. The switchyard includes the K-709-A Oil Filtering Facility, the empty K-709-B Transformer Oil Storage Tank, and the K-709-C Sprinkler Valvehouse. Conductors entering and leaving the substation are disconnected. Formerly, three main lines were in operation. An MOA was approved for demolition in March 1994 and the facilities are demolished.

Building K-0711

K-711 is a one-story concrete masonry building with corrugated transite covering and a gabled roof, double-hung windows, and half-glass personnel doors.

Building K-0716

This small pier, built on the bank of Poplar Creek in 1946, has steel grating on a wood-timber frame set approximately 18-in above the water. Steel steps go down to water level.

Building K-0722

K-722 was constructed on the site of the Fercleve Thermal Diffusion Process Facility, S-50. The Navy research team known as the National Energy for Propulsion of Aircraft (NEPA) Project occupied the facility.

Building K-0723

K-723 was a small boiler house constructed as part of the Fercleve thermal diffusion process southwest of the main Power House Complex. Boiler House 2, Building F-19, was constructed at the western edge of the S-50 complex, but has been demolished. Fairchild used the building in the fall of 1948 during the NEPA Project.

Building K-0726

K-726 was a storage building in the Power House Complex. K-726 is a one-story concrete masonry structure with a gabled, corrugated transite roof. The building was constructed on the former site of Building F-19 (K-1088), Fercleve Boiler House 2. Switchgear has been stored there since the 1990s.

Building K-0731

This switch house was built to distribute electrical power from the power house to K-27 and later K-29. However, this facility and those that followed it were located adjacent to the process area rather than at the Power House Complex.

A Section 106 MOA was completed November 14, 1994, to address decommissioning of the K-731 Switch House and the associated K-732 Switchyard.

K-731 is a one-story, steel-framed structure with a subgrade basement and jumbo-sized brick veneer exterior walls. The 2-ha (5-acre) switchyard is south of the building.

Building K-0732-101

K-732-101, -102, and -103 are inside K-732, the K-27/K-29 Switchyard. These units include pump lift stations.

Building K-0732-102

K-732-101, -102, and -103 are inside K-732, the K-27/K-29 Switchyard. These units include pump lift stations.

Building K-0732-103

K-732-101, -102, and -103 are inside K-732, the K-27/K-29 Switchyard. These units include pump lift stations.

Building K-0733-A

K-733-A is an oil pumphouse serving the K-732 Switchyard. The building houses the oil pump, motor, filters, and associated valves and piping.

K-733-A is an abandoned, one-story, one-room 225 ft^2 building. It has concrete flooring, synthetic siding, and two-panel, half-glass wooden personnel doors.

Building K-0733-D

K-733-D was a valve house for the K-732 Switchyard firewater deluge system. K-733-D facility serves oil circuit breakers, transformers, oil tanks, and the oil pumphouse.

K-733-D is an abandoned 32.5 m^2 (350-ft^2) building. It has concrete flooring, corrugated transite roofing, and synthetic siding.

Building K-0733-E

K-733-E was a valve house for the K-732 Switchyard firewater deluge system. The K-733-E facility serves transformers and oil circuit breakers. K-733-E is a one-story, 225-ft^2 building with synthetic siding, corrugated transite roofing, and windows with awnings.

Building K-0761

The K-761 Switch House (also known as the K-31 Switch House) and associated switchyard represents the power distribution and electrical switching station for the K-31 building. The facility is no longer used. The facility has two building "galleries" and a control room "gallery."

K-761 is a high bay (two-story) frame structure with a 1.2-m (4-ft) concrete wainscot and clay tile exterior walls with large wooden louvers and a low, sloping, built-up roof.

Building K-0802

K-802, located northwest of the K-25 building, is a one-story, 11,175-ft^2 concrete-block structure on a concrete foundation. The building has a poured-in-place gypsum roof. K-802, with a 135,000 gpm capacity, was used from 1945 to 1964 to provide recirculating cooling water to the K-25 uranium enrichment building. Later, the pumphouse continued in use to serve heat exchangers at other site facilities.

Building K-0832

K-832 Recirculating Cooling Water (RCW) Pumphouse, located west of K-27, is a concrete-block building with gross floor area of 11,097 ft^2 and an RCW capacity of 25,000 gpm. The pumphouse, which operated from 1946 to 1985 as the RCW pumphouse for the K-27 and K-29 uranium enrichment buildings, is now shut down. K-832 pumphouse has a substructure consisting of two reinforced concrete channels approximately 30 ft wide and 20 ft deep each, and reservoirs for RCW. The building's superstructure consists of a concrete frame and exterior walls. The main bay holds six RCW pumps and motors. An MOA was approved for demolition in August 1993; however, the facility has not been demolished.

Building K-0833

K-833 Cooling Water Return Pumphouse, located immediately northwest of the K-732 Switchyard, is a wood-frame building with transite siding and roof and total floor area of 225 ft^2. The pumphouse was built in 1946 as the cooling water return lift station for the K-27 and, later, K-29 uranium enrichment buildings. The pumphouse, with a capacity of 20,000 gpm, became inactive in 1985.

Building K-0892

This 23,200-ft^2 concrete-and-block structure is located west of the K-902-4 portion of the K-33 building. K-892 operated 1954-85 to pump make-up water for the K-33 recirculating cooling water (RCW) system. K-892 consists of three sections. The northwest section contained water treatment chemical tanks and feed equipment. The east section contained 11 RCW pumps, piping, and valves. The south section contained electrical transformers, diesel fuel, and chemical storage tanks. Seven transformers are located outside the west wall.

Building K-0901

The K-901 building was constructed in 1956 as a recirculating cooling water (RCW) intake facility on the bank of the Clinch River. K-901 is a 795-ft^2 frame building with roof and walls covered with corrugated transite. The gable roof retains its continuous ridge vent. The building, which originally provided RCW to the K-33 building, is now in use as a switchgear building.

Building K-1004-A, -B, -C, and –E

K-1004-A, -B, and -C are contiguous structures located at the southwest corner of Fifth Street and Avenue D. The facilities were built in 1945 as laboratories for the K-25 plant and remained in use as laboratories. Each of these buildings is a one-story, concrete-block structure with concrete basements, steel-frame superstructures, and an approximate floor area of 18,000 ft^2. The buildings have poured-in-place gypsum roof slabs on bar joists, covered with 3-ply, built-up roofing. K-1004-E is a 120-ft^2 concrete-block storage building in the courtyard between the "A" and "C" labs. These are inactive facilities.

Building K-1004-D

K-1004-D, located at the northwest corner of Fifth Street and Avenue D, has been in use as a laboratory and/or office building since its construction in 1945. The building is a 24,870-ft^2 wood-frame structure on concrete foundations. The building has a reinforced concrete basement under one wing. The exterior walls were originally covered with drop siding, and the roof was covered with asphalt shingles.

Building K-1004-F

This 774-ft^2 one-story, concrete-block storage shed is located at the southeast corner of Fifth Street and Avenue E. The structure, built in 1954, has two panel-shingle and double doors. It has been used since its construction as a laboratory storage building.

Building K-1004-H

This 1122-ft^2 open shed was built northeast of K-1004-C in 1945 for storage of gas cylinders used at nearby laboratories. The steel-framed shed rests on an elevated reinforced concrete foundation and floor. The structure has a corrugated asbestos board roof with clerestory roof ridge louvers and a skirting of corrugated cement-asbestos board from the roof down to 7 ft above the floor.

Building K-1004-J

K-1004-J laboratory, located at the northeast corner of Fifth Street and Avenue D, served from the late 1940s to late 1950s as a research and development facility for the recovery of uranium from Hanford reactor spent-fuel solutions. From the 1960s through the 1980s, the building was expanded and used as a research and development facility for uranium enrichment by the gas centrifuge process. In recent years the building has been used as a power electronics laboratory, health physics training area, and radio repair shop. K-1004-J also contains offices and a break area. K-1004 is a 7250-ft^2 one-and-a-half-story concrete masonry building with a

hip roof covered with asphalt shingles. Extensive expansions and remodeling have been done to the building since its construction in 1948.

Building K-1004-L

This 46,200-ft^2 building is located west of Portal 3, south of Fifth Avenue. K-1004-L was built in 1950; the offices and laboratories necessary to support its operation were added later. The pilot plant portion of the building operated continuously from 1950 until shutdown in 1984 to demonstrate improvements in the quality of the gaseous diffusion barrier. The floors of K-1004-L are poured concrete, and walls are concrete block. The pilot plant consists of six cells that extend from the first floor into the mezzanine level. The motor alleys that separate the cells contain the stage motor compressor sets for the adjacent cells. Supporting oil, coolant, evacuation, and some gas sampling systems are located at the cells' perimeter on the first floor. Process gas feed, withdrawal, and top sample systems are located at the cells' perimeter on the mezzanine floor. This is an inactive facility.

Building K-1008-A

The K-1008-A building was built in the mid-1940s as part of the original war-time construction of the ORGDP. The building is a men's change house with locker and shower facilities. Locker rooms are on the north and south ends of the building, with showers and restrooms in the middle. The building is a wood-framed, one-story structure with a concrete slab-on-grade floor. The roof is sloped and covered with composite shingles. Interior steel pipe and timber columns support the roof. Exterior walls are asbestos-cement shingles over the original wood siding. Interior walls are gypsum board, and shower areas are tile.

Building K-1008-B

The K-1008-B building was built in the mid-1940s as part of the original war-time construction. The building is a men's change house with locker and shower facilities. The northeast corner of the building is used for packaging respirators that are cleaned in an adjacent building. The building is a wood-framed, one-story structure with a concrete slab-on-grade floor. The roof is sloped and covered with composite shingles. Interior steel pipe and timber columns support the roof. Exterior walls are asbestos-cement shingles over the original wood siding. Interior walls are gypsum board, and shower areas are tile. A 1991 report indicated that this building had significant termite damage.

Building K-1008-D

The K-1008-D building was built in the mid-1940s as part of the original war-time construction. It is a wood-framed structure with asbestos-cement siding. The foundation is a concrete slab. The north portion of the building consists of offices that have been used in the past by medical personnel for physical therapy treatments. The center of the building was dedicated to a refrigeration maintenance shop. The remainder of the building was a combination electrical and instrument (alarms) maintenance shop.

Building K-1015

K-1015, located at the southwest corner of Sixth Street and Avenue D, was in use as the site laundry, 1944-1997. The building is an 8,039-ft^2 one-story, wood-frame structure with asbestos-shingle siding. The building has concrete foundations and concrete floors, a five-ply, built-up roof, and drop siding. The lapboard siding is now covered with asbestos-cement shingles. This is an inactive facility.

Building K-1018

This 980-ft^2 building is located south of K-1004-B laboratory. K-1018 was built in 1953 to house the emergency generator for the site public address system. All generator equipment has since been removed, and the building was used for maintenance storage. This concrete block building has an asphalt shingle roof and has retained its wooden louvers and door. This is an inactive facility.

Building K-1020

Building K-1020 was built in 1945 for use as the K-25 Site Security Headquarters. It is a one-story, irregularly shaped, wood-framed building on concrete and concrete block foundations. The exterior walls are covered with asbestos-cement siding. The wood-frame roof is covered with roll roofing and composite shingles. Four roof ventilators are mounted on the roof. The original building provided approximately 17,251 ft^2 of floor space. In 1985, an additional 4,000 ft^2 was built onto the east side. The K-1020 building presently provides office space for the Radiological Control Organization and space for training facilities. This is an active facility.

Building K1024-A and –B

K-1024-A, originally designated the Gas Manifold Station, was built in 1945 inside the K-25 building courtyard. Along with K-1024-B and K-1024, K-1024-A was part of the original instrument repair facilities for the K-25 uranium enrichment building. Building K-1024-B is attached to K-1024 on the west side of the building. Building K-1024-A no longer exists.

Building K-1024-C

K-1024-C is a 729-ft^2 concrete-block building located inside the K-25 process-building courtyard. The guardhouse, originally designated K-1074-A, was built in the late 1940s as a verification office for the Plant Protection Division. In 1954, the building became an instrument shop. In 1960, the building was redesignated the K-1024-C Instrument Radio Shop. By the mid-1970s, K-1040-C was in use as a storage facility.

Building K-1028-40

Building K-1028-40 is a gate house located adjacent to Blair Road near Poplar Creek. An MOA was approved by the Council and the SHPO in 1993 to demolish this facility.

Building K-1028-47

Building K-1028-47 is the gate house at Portal 5, north of K-1423. The building was constructed in 1954. It is a one-story structure, approximately 15 ft × 30 ft in size. It is constructed of concrete walls with windows on three sides, concrete slab-on-grade floor, and a flat roof. A rest room is located at the west end of the building. Turnstiles are located on two sides of the building allowing pedestrian access into or out of the plant site. A vehicle access gate is located on the west side of the building.

Building K-1028-49

This facility was a Gate House at Portal 10. This gatehouse and portal is a concrete structure with a low, sloping, built-up roof with deep overhangs. Typically, the portals have metal awning windows, half-glass personnel doors and full-height turnstiles under the overhang on the exterior of the structure.

Building K-1028-50

K-1028-50 is a 276-ft^2 corrugated transite building located northeast of the K-1037 building. K-1028-50 (Portal 6) has been in use since its construction in 1954 as a gatehouse for the main plant portion of the site.

Building K-1028-54

Building K-1028-54 is a former pay station (where employees picked up their pay check) and was constructed in 1954. It is located adjacent to the Portal 5 gate house, north of K-1423. The building is a one-story structure, approximately 12 ft × 12 ft. It is constructed of concrete masonry walls with windows on three sides, concrete slab-on-grade floor, and a flat roof. The latest use of the building has been for the storage of janitorial supplies.

Building K-1028-55

K-1028-55 (Portal 7) was built in 1954 or 1955 as the gatehouse for controlling entry and exit from the plant. The gatehouse, located east of the K-29 building, is 1,120-ft^2 concrete and glass structure.

Building K-1028-56

K-1028-56 (Portal 8) was built in 1954 or 1955 to control access in and out of the K-31/K-33 area. The gatehouse is a concrete structure with a low, sloping, built-up roof with a deep overhang. The building has metal awning windows, half-glass, personnel doors and full-height turnstiles under the overhang of the exterior structure.

Building K-1028-57

These two guard stations, located at Portal 2, have been in use since their construction in 1954 or 1955 for monitoring entry and exit at the main plant area of ETTP. The main and east gatehouses have floor areas of 525- and 100 ft^2, respectively. Both gatehouses are of brick-and-glass construction.

Building K-1028-59

The K-1028 Gate Houses were used as guard stations for monitoring entry and exit from the plant. The K-1028-59 Gate House was located at Portal 2 (East) at the main entrance of the plant. This gate house and portal is a concrete structure with low, sloping, built-up roof with deep overhangs. Typically, they have metal awning windows, half-glass personnel doors and full-height turnstiles under the overhang on the exterior of the structure.

Building K-1028-64

K-1028-64 is a 160-ft^2 concrete block building located at ETTP Portal 9. The building has been in use since its construction in the 1970s as a gatehouse for controlling entry and exit from the plant site.

Building K-1030

Building K-1030 is a two-story, 18,000-ft^2 concrete and corrugated-transite structure located in the northern courtyard of the K-25 building. The building was used as an electrical maintenance shop from the 1940s through the 1980s. Other uses included guard headquarters and Operations Analysis Office. In the 1980s, K-1030 was designated a classified office building.

Building K-1034 (K-1034-A)

K-1034-A has been in use since the 1940s as the vault for site records. The building was originally part of a three-building office/records complex, the remainder of which has been demolished. K-1034-A is a two-story frame building with brick veneer walls and a built-up roof. The building has a one-story concrete masonry addition and a total floor area of 8,374 ft^2.

Building K-1035

The K-1035 building was built in the mid-1940s for use as a warehouse and storage facility. In 1963, the K-1035 building was converted to an instrument maintenance facility. Operations within the facility included a printed circuit board fabrication shop, an electronics shop, a mechanical shop, a radio shop, a pneumatic shop, a photography shop, an acid cleaning area for line recorders, and a shipping/receiving area. Until the building was leased, Building K-1035 housed offices and shops of the Maintenance Division and was the primary instrument shop for the site.

The printed circuit board fabrication shop operated from the early 1960s to 1977. The acid cleaning area operated from the early 1960s until 1985. The acid and neutralization pits received acid and solvent wastes primarily from these two dedicated instrument shops in Building K-1035: the printed circuit board facility, which was shut down in 1977 and partly decommissioned, and the acid cleaning area, which is in a standby mode with equipment in place, capable of restart operations as needed. A Resource Conservation and Recovery Act (RCRA) Facility Investigation Plan for the pit area was developed in 1990; however, no investigation has been performed. The pits are now covered and the lines that lead to them turned off.

The facility is of steel frame and concrete block construction with concrete foundation and corrugated asbestos/concrete roofing. There is no basement in the facility. The building has concrete loading docks on the east and west sides with concrete ramps on the southwest, northwest, and northeast corners from the street up to the associated docks.

The K-1035-A Waste Storage Building is 7-ft long by 16-ft wide × 9-ft high. The building is constructed of a 4-ft high concrete block base with the remainder consisting of steel frame and corrugated galvanized siding and roofing. The concrete flooring is diked. Access is key-controlled through the two metal doors on the south end. The K-1035-B Toxic Substances Control Act (TSCA) Accumulation Area is a building that butts up against K-1035. K-1035-B is approximately 52-ft long × 8-ft wide × 9-ft high. The building is constructed of concrete blocks with a small amount of corrugated metal siding, a sliding metal door, and a corrugated metal roof. Access is key-controlled through the metal door on the south end.

Building K-1036

Building K-1036 was completed in 1945. It is a single-story structure warehouse constructed of concrete blocks and steel superstructure on a uniform concrete slab foundation. It occupies approximately 78,000 ft^2 of space. The building has support systems that include fluorescent lighting, domestic water, compressed air, and steam for unit heaters. Additionally, a wet pipe sprinkler system is provided for fire protection. Until the building was leased, it served as a materials receiving, storage, and distribution system for the K-25 Site. The building is subdivided by firewalls that create four large bays. Each firewall has sliding fire doors that are designed to roll closed when their fusible links melt from the thermal energy of a fire. The three southern-most bays were referred to as "counters" and were designated as Counters A, B, and C/D. The counters were configured to allow plant employees to walk up on the east, southeast, and south sides of the building and acquire stores materials stocked on metal shelving within the counter bays. The north end of the building had numerous offices and was used as the shipping and receiving center for the K-25 Site.

Building K-1037

The K-1037 Industrial Research Facility is a 334,000-ft^2 building located west of the TSCA incinerator complex. The building was originally used as a warehouse during World War II. However, the building's size and mission both expanded through the years. Most prominently, barrier production for all gaseous diffusion plants was carried

out at this facility until 1987. Offices and research areas for the AVLIS uranium enrichment program were later located in the building. K-1037 is a steel-framed structure with reinforced concrete floors. The K-1037 complex is composed of a series of buildings and additions that were constructed at different times from the 1940s through the 1970s and joined less than one roof. Transite siding covers the three outside walls of the eastern half of the building. Three outer walls of the western portion of the structure are covered with metal siding.

Building K-1037-C

The K-1037-C Smelter House is a 3,100-ft^2 corrugated transite shed located adjacent to the east end of building K-1037. The smelter house, in operation from 1954 to 1981, was associated with barrier production operations at K-1037 and contained a nickel smelter for processing barrier material. The building has a corrugated roof, and the windows are boarded up.

Building K-1039

This 2378-ft^2 building is located west of Avenue D, immediately south of K-1004-L. From 1945 until 1997 the building was the telephone exchange for the K-25 site. The building is a one-story structure with built-up roof and a cable vault under the floor. K-1039 has brick, load-bearing walls and metal louvered openings.

Building K-1040

Building K-1040 is a 1,700-ft^2 corrugated-transite building located west of K-633. K-1040 was built in 1945 as the site's Fire Station No. 3. The building was used briefly as a maintenance warehouse in 1947 before becoming the site's Industrial Relations training school. In 1951 and 1952, K-1040 was again put in use as a fire station (No. 2) before being converted to the maintenance shop for the K-633 Test Loop in 1953. K-1040, which operated into the 1980s as the test loop maintenance shop, is inactive.

Building K-1045

The K-1045 Building is one story with a flat, built-up roof and boarded-up windows. The wall covering is concrete masonry. The foundation is cast concrete. The building has an open shed roof secondary addition. The first floor covers 800 ft^2.

Building K-1058

Building K-1058 was built in approximately 1945. It is a materials storage facility used primarily for non-flammable hazardous dry materials and liquids, process equipment, general supplies, and other raw materials. The warehouse is a one-story, wood structure with siding, asphalt roofing, and a concrete foundation. The building is equipped with an incandescent lighting system, domestic water system for safety shower and eyewash stations, and steam unit heaters. The building is also equipped with a dry-pipe sprinkler system with thermally activated nozzles.

The building is a long, narrow structure situated in a north-south orientation. It has approximately 11,711 ft^2 of storage space consisting of one open warehouse area. A

combination safety shower and eyewash station is located in the northwest corner of the facility in a curbed-in area. Three swing-out doors (two on the west side, and one on the east side) are provided for easy ingress and egress.

Building K-1059

K-1059 is a one-story building with a built-up roof and double-hung windows. The wall covering is weatherboard. The building has a rectangular floor area with a continuous foundation composed of cast concrete. The floor plan covers 12,510 ft^2. Features of the building include two-panel, wooden personnel doors, wood-paneled industrial doors, and wooden louvers.

Building K-1098

Building K-1098 was built in 1948. It was originally built to store cement (cement batch house) but was used later as a plumbing shop and spare parts storage facility. It is a concrete block building on a concrete slab. It has a wood roof covered with standard roofing shingles. The interior of the building is divided into three sections with the middle section being originally built with the floor elevated 3 ft to keep the cement dry. The building has electrical service, water, steam, and plant air. It has steam heat and is cooled by window-mounted air conditioners.

Building K-1098-D

Building K-1098-D was originally built in 1949 for an equipment shed. It was later converted to office space use and a lunchroom. The building is approximately 75 ft long × 35 ft wide × 14 ft high. The building is a concrete-block structure with a wooden truss transite roof on a concrete slab. Utility service into the building includes 480 V electrical service, potable water, and steam heat. Air conditioning in the facility is provided by wall units.

Building K-1098-E

Building K-1098-E is located to the east of K-1401. It is a one-story, 14,800-ft^2 building with a rectangular shape. The roof and sidings are metal. It has awnings over the windows and it has a chimney. It was used as a heat treating facility.

Building K-1102

The K-1102, K-1102-A, and K-1102-B buildings are located inside the K-25 building courtyard, and were built in 1945 as Hydryer refrigeration buildings. Each building is a one-story, 677-ft^2 steel-frame and corrugated-transite building. Steel frames and ductwork run above all the buildings.

Building K-1102-A

The K-1102, K-1102-A, and K-1102-B buildings are located inside the K-25 building courtyard, and were built in 1945 as Hydryer refrigeration buildings. Each building is a one-story, 677-ft^2 steel-frame and corrugated-transite building. Steel frames and ductwork run above all the buildings.

Building K-1102-B

The K-1102, K-1102-A, and K-1102-B buildings are located inside the K-25 building courtyard, and were built in 1945 as Hydryer refrigeration buildings. Each building is a one-story, 677-ft^2 steel-frame and corrugated-transite building. Steel frames and ductwork run above all the buildings.

Building K-1132

The former site hydrogen fluoride (HF) "tank farm" area is located adjacent to the K-1066-E cylinder yard northwest of the K-27 building. During gaseous diffusion operations, anhydrous HF was stored at this facility for use in fluorination of uranium oxides to UF_6 at the nearby K-1131 feed plant. The K-1132 and K-1133 storage sheds, built in the early 1950s, each cover two large steel tanks for storage and distribution of anhydrous HF. The facility is inactive.

Building K-1133

The former site HF "tank farm" area is located adjacent to the K-1066-E cylinder yard northwest of the K-27 building. During gaseous diffusion operations, anhydrous HF was stored at this facility for use in fluorination of uranium oxides to UF_6 at the nearby K-1131 feed plant. The K-1132 and K-1133 storage sheds, built in the early 1950s, each cover two large steel tanks for storage and distribution of anhydrous HF. The facility is inactive.

Building K-1134

Building K-1134 was built in 1952 of structural steel with panels of aluminum for siding and roofing. The building is approximately 32 ft long × 36 ft wide × 14 ft high on a raised concrete foundation. The flooring in K-1134 is asphalt. The walls (siding) of the 3-sided shelter are raised approximately 4 ft above floor level by concrete support columns. The building is located in the southwest corner of the K-1060 Yard and west of Building K-1059. Originally K-1134 was used to provide shelter for two large hydrogen fluorine tanks; however, the tanks have been removed and K-1134 is currently used for general materials storage.

Building K-1135

The former site HF "tank farm" area is located adjacent to the K-1066-E cylinder yard northwest of the K-27 building. During gaseous diffusion operations, anhydrous HF was stored at this facility for use in fluorination of uranium oxides to UF_6 at the nearby K-1131 feed plant. K-1135 is a 144-ft^2 concrete block building formerly used as a storage control building for HF operations. The facility is inactive.

Building K-1201

Building K-1201 is a 6,900-ft^2 corrugated transite building located adjacent to the K-1101 air plant in the K-25 building courtyard. Beginning in the 1940s, K-1201 was used in support of the gaseous diffusion process; it is still in operation for other air compressor activities.

Building K-1202

The K-1202 Hazardous Waste Storage Tanks were originally constructed in 1944 to store lube oil. The two tanks consist of two independent 15,000 gal aboveground tanks. Each tank is 10-ft in diameter and is 25.75-ft long. The tanks are constructed of carbon steel and are supported horizontally by concrete pads. The tanks and their supports are located within a concrete containment basin with a capacity of 20,000 gal. The basin walls are 6-in thick and rest on a 4-in thick reinforced concrete pad. Wastes stored in the tanks are primarily targeted for disposal at the K-1435 TSCA Incinerator.

Building K-1203-04

This facility was part of the original site sanitary sewage treatment plant, built in 1943. K-1203-4, originally designated the S-31 Chlorinator, is a 264-ft^2 building with synthetic siding; doors are two-panel, half-glass personnel doors. The K-1203 sewage treatment plant has remained in operation since 1943.

Building K-1203-08

This facility was part of the original site sanitary sewage treatment plant, built in 1943. K-1203-8 Sewage Lift Station, a one-story building with metal siding and roof, is a chlorine-contact facility for disinfection of treated sewage being discharged to Poplar Creek. The K-1203 sewage treatment plant has remained in operation since 1943.

Building K-1203-10

This facility was part of the original site sanitary sewage treatment plant, built in 1943. K-1203-10 High Water Lift Station is a 180-ft^2 building with asphalt roofing shingles and transite siding. The building was designed for discharging water to Poplar Creek during periods when the creek's water level is higher than normal. The K-1203 sewage treatment plant has remained in operation since 1943.

Building K-1204-10

This facility is an approximately 200-ft^2 one-room concrete block structure southeast of K-33. The building has a flat, built-up roof, concrete wall cover and a continuous-cast concrete foundation. The structure was built in 1954 to elevate sanitary sewage for gravity flow to the sewage treatment plant.

Building K-1206-D

This 300,000-gal water tank is located on McKinney Ridge north of the ETTP Main Plant area. K-1206-D is a cylindrical, concrete in-ground structure with an in-ground valve pit.

Building K-1207

K-1207 is a one-story, 624-ft^2 brick building located inside the K-25 building courtyard. The structure, built in 1946, was originally an air humidity condenser. The building is now used for maintenance storage.

Building K-1231

Building K-1231, a 12,200-ft^2 corrugated-transite structure, is located immediately northeast of K-27. K-1231 was built in 1945 and used for a variety of gaseous diffusion support missions before its shutdown in the mid-1980s. Activities at the building included drum storage, compressor operations, salvage parts warehousing, and operation of a large pulverizer/screener for multi-ton quantities of uranium oxides in support of K-1131 feed plant operations.

Building K-1400

Building K-1400 was built in the 1952 time frame and has been and continues to be used primarily for office space. The building is a two-story structure having concrete block exterior construction with panel board and glass interior walls. The interior walls lining the hallways are half-height panel board and half-height glass. The vinyl ties have been removed from the floors and the ceilings are metal tiles. Lighting in the building is both fluorescent and incandescent.

Building K-1401

Building K-1401 was built in the mid-1940s, and it is located in the east central portion of the ETTP. Until the building was leased, it was mainly used as a maintenance facility and machine shop. Most of the building has been leased except for the basement and oven area. The main floor area is a large, open high-bay area with areas for fabrication and maintenance of various types of equipment. It contains machine-shop-type equipment such as drill presses, lathes, and milling machines, as well as areas used for cleaning, repairing, and assembling equipment, including a sheet metal shop, carpenter shop, and weld shop. The building is equipped with several overhead cranes that were used for lifting and moving heavy equipment. Past operations in Building K-1401 supported the mission of the K-25 site to enrich ^{235}U. Pieces of process equipment such as motors, converters, and compressors were brought into the facility from the plant area to be cleaned or repaired. Since most of the equipment came from the process areas, various amounts and types of radiological contamination were present, thus contaminating some of the equipment and surfaces of the K-1401 building.

Building K-1402

Building K-1402 is a one-story structure with a basement and was constructed in 1945. The structure's walls consist of terra-cotta tile supported by steel I-beam framing with tie rod connections. Floors and basement walls are constructed of poured concrete, and the roof assembly consists of pre-cast concrete slabs. The building is located on the west side of K-1401 at the northwest quadrant of K-1401, across Avenue F from K-1036. The building is typically unoccupied except for necessary equipment inspections and

maintenance. Building K-1402 was constructed to supply and distribute electricity to the K-1401 fabrication shops. Electricity is fed to K-1402 by pad transformers located on the northwest corner of the building. The transformers are in a chain-link fence enclosure on the northwest corner of the building. The transformers convert 13.8 kV from the plant's distribution system to 480 V.

Building K-1414

Building K-1414 is a steel-frame structure with a concrete foundation. The walls are concrete block. There is approximately 15,000 ft^2 of usable floor space with the main portion in the high-bay area. Large portions of the east and west walls in the high-bay area are glass windows. The facility was constructed in 1949. This facility is used as an automotive service garage for servicing the fleet of vehicles on site. The building is equipped to maintain most all motor vehicles and/or heavy-duty equipment. Offices, parts storage, restroom, and a lunchroom are on the west side of the building. Most of the vehicle maintenance is performed in the high-bay area. To the east, adjacent to the high-bay area, is a grease pit area for routine fluid changes. A vehicle wash area and tire repair area are also located on the east side of the facility. On the northwest side, a small room is provided for an operator who dispenses fuel from pumps just north of the building. The vehicle wash facility, K-1414-B, is west of the garage beside the parking area. The washer is a Tammer Matic on a 20 ft × 64 ft concrete pad, which travels by special rails over the vehicle being washed. Underground gasoline and diesel tanks are located approximately 100 yards northeast of K-1414 and are designated as the K-1414-C storage facility.

Building K-1415

Building K-1415 is located north of the K-1059 Property Sales Staging Area, west of the K-1036-A RCRA Drum Storage Shed, east of the K-1060 Central Material Yard, and bounded on the north by 16th Street. K-1415 is a storage shed built on reinforced concrete slab with roofing made of corrugated asbestos cement panels. It measures approximately 370-ft long, 55-ft wide, and approximately 25-ft high. Almost 240 ft the length of the shed is open on all three sides. The remaining length is covered on the west side with corrugated steel sheets, but the east side is only partly covered (for about 20 ft) from a block wall with corrugated steel sheets, and the rest with fencing material. The north end of the shed is left fully open. A block wall exists between the two parts of the shed with an entrance opening of about 15 ft. An unoccupied office, about 14-ft long and 7-ft wide is located on the north west side of the block wall. The southern part of the K-1415 Lumber and Steel Storage Facility is used mainly for storage of new, empty, steel drums (including both 55-gal and 35-gal sizes) and used wooden pallets. Four new transformers, two dry and two liquid, are kept in the K-1415 shed. Materials in transit to K-1059 are also stored in this area temporarily. The part of the shed north of the block wall houses various stock items such as steel bars, metal alloy rods, stock piping, etc.

Building K-1416

Building K-1416 is located in the central portion of the K-25 Site directly east of Building K-1059 and directly west of Building K-1036. The doors are located on the west side of the building. The K-1416 Material Storage facility was constructed to hold flammable materials, acids, oxides, toxic materials, and nonhazardous materials. The building is a

one-story storage building consisting of concrete masonry unit walls, a sloped corrugated asbestos-cement roof supported by steel trusses and purlins over a corrugated asbestos-cement ceiling. The floor is a concrete slab-on-grade, with 8-in-high curbs around the perimeter of each of the rooms (A through I). The rooms are accessible from the outside through steel doors that open to 8-in-high concrete ramps leading down to the rooms. The rooms contain floor drains that have been plugged with grout. The roof has eight 14-in-dia ventilators and two 8-in-dia ventilators.

Building K-1416 consists of nine storage vaults, A through I. The south side wall (separating Vaults A and B) is a firewall that extends to the underside of the roof. Vault A is the only portion of the building, which has an automatic fire protection system. Vaults B and C (this is actually one large, 40 ft × 40 ft, room with two doors) are separated from Vaults D and E by a concrete block partition that extends to the underside of the roof. Vault D is bordered by Vaults B and C on the north and is separated from Vault E by a concrete block wall partition 10-ft high. Vaults B, C, and D border vault E on the north side and Vault F on the south. The south wall of Vault E is a concrete block partition 10-ft high. Vault E also contains a sub-vault. Vaults F and G are both separated from Vault H by a concrete block partition that extends to the underside of the roof.

Building K-1420

Building K-1420 provided radiological decontamination of the K-25 Site process equipment with subsequent uranium recovery. It was also used for nickel plating operations.

K-1420 is a high bay, two-story international-style building with a low, sloping, built-up roof. It has metal doors and windows. Walls with operable awning units dominate the concrete frame and walls. A metal shed addition is on the eastern side.

Building K-1501

Building K-1501 is located on the east side of the K-25 Site between Building K-1401 on the west and building K-1037 on the east. The L-shaped, K-1501 steam plant building, built in 1944 and subsequently expanded in several stages until 1990, is approximately 300-ft long, east to west, and 45-ft wide. The building is approximately 40-ft high and contains approximately 14,000 ft^2 of area on both the ground floor and basement levels. The steam generated in K-1501 is distributed site wide to various process, maintenance, and building areas through overhead and underground steam piping and return condensate lines.

Building K-1501 houses the facility, which supplies steam in a looped system at a nominal pressure of 100 psig throughout the site for process, maintenance, office, and general areas primarily for space heating purposes. Of the nine boilers installed in this facility, only four boilers are used. Boilers #1,#2,#3,#5 and #6 are abandoned in place. Boiler #4 was converted from the use of coal fuel to natural gas in 1980. Three package boilers #7, #8 and #9 use natural gas fuel but can also be switched over to the use of #2 diesel oil as a backup when required without any modifications. Boilers #7, #8 and #9 were placed in service in 1973, 1991, and 1993 respectively. Boilers #8 and #9 are housed in a new 2,500-ft^2 building addition to the west side of the steam plant. This 1990 addition, designated K-1501-B, is approximately 30-ft high and has no basement.

Building K-1513

This pumphouse was part of the original K-25 site water treatment plant, built in 1944 at the Clinch River near Bear Creek Road. K-1513, originally designated building S-43, is a one-story, brick structure with wooden wall louvers and two-panel wooden doors. The building has a low, sloping, built-up roof. A large aluminum grate deck with metal handrails faces the riverfront.

Building K-1515

The K-1515 Sanitary Water Plant, originally designated the S-33 Water Purification Plant, was built in 1944 to serve the K-25 site. K-1515 is a 6500-ft^2 two-story frame structure with a gable-shaped, shingle roof covering the main and rear wings. Front and rear additions have a low, sloping, built-up roof. The central portico has neoclassical details obscured by new aluminum porch awnings. Vinyl siding covers the main and rear wings. Windows have been replaced with 6/6 light, metal double-hung windows.

Building K-1529

K-1529 is a 1.5-million-gal, steel, cylindrical tank, and K-1530 is a 2.5-million-gal, cylindrical tank, both located on Pine Ridge south of the ETTP main plant area. These two tanks are in use as part of the ETTP site sanitary water system. Although the ETTP *Cultural Resources Survey* lists these tanks as having been built in 1944 or 1945, K-1529 and K-1530 were in fact built in the early 1970s and 1980s, respectively.

Building K-1530

K-1530 is a sanitary water tank that held drinkable water for the main plant complex. The tank is on Pine Ridge, south of the main plant complex. K-1530 is a 9.5 million-L (2.5 million-gal), steel, cylinder-shaped tank. Although the ETTP *Cultural Resources Survey* lists these tanks as having been built in 1944 or 1945, K-1529 and K-1530 were in fact built in the early 1970s and 1980s, respectively.

Building K-762-204

K-762-204 is in the K-31 Switchyard. K-762 was constructed to receive TVA power and supply the K-31 process facility. The 161 kV feeds have been disconnected. The switchyard was shut down in 1985. K-762 contains surplus electrical equipment. Concrete trenches containing oil piping run through the switchyard. The switchyard is partially fenced.

Process Tie Lines

Tie lines contained piping for distribution of various gases such as dry air, steam, nitrogen, and uranium hexafluoride between process buildings. Pipe racks were used to transport standard chemical gases such as air, nitrogen, and steam from the Air Plant, the Steam Plant, and the Nitrogen Plant to work areas in the laboratories, maintenance buildings, and process buildings. Fully enclosed heated housings were used to distribute UF_6 process gas between the enrichment cascade buildings. The pipe racks

were usually not enclosed but contained both insulated and non-insulated pipes.

By placing these pipes above ground and routing them over streets and roadways, construction costs were less and lines were readily accessible for future maintenance. The gaseous diffusion process gas tie lines were fully enclosed in thermal-insulated housings similar to the tie line between the K-27 and K-31 Process buildings. Among other uses, these tie lines connected the last stage in one building with the first stage in the next building to maintain a continuous cascade flow between the very top stage and the bottom stage in the process.

The tie lines are composed of multiple UF_6 distribution pipes of various diameters from 3 inches to 42 inches. The housings were provided with hot air or steam heat and temperature control instrumentation to prevent condensation of UF_6 process inventory. Some housings contained large fans to maintain hot air movement within the housings. When the plant was shutdown in 1985, the volatile UF_6 inventory was evacuated, and the tie lines were purged and isolated from the process system by closing the valves in the interconnecting buildings.

Buildings having potential for further evaluation in development of site-wide alternative

Building K-0601

This three-story, 17,157-ft^2 building is located at the southern end of the K-25 building "courtyard." The building is constructed of steel frame and concrete block, and siding is corrugated transite. K-601 was built in 1945 as a bottom purge facility and tails withdrawal for the original K-25 uranium enrichment cascade. In the 1950s, the original process equipment was removed, and K-601 was used for Coded Chemicals operations. In the 1970s, contaminated building surfaces were painted, and a maintenance training facility began operating in K-601.

Building K-1002

Building K-1002 is located at the northeast corner of Avenue F and Fifth Street, and has been in use since its construction in 1945 as the site cafeteria. The eastern portion of the building was originally used as a clock alley and has been in use since the 1960s as the site library/document center. K-1002 is a 42,219-ft^2 one-story frame structure with wooden panel, half-glass doors. The gabled roof has asphalt shingles and roof-ridge ventilators. The wooden lapboard siding is now covered with asbestos-cement shingles. The original T-shaped plan has similar, parallel wings added to the rear of the central plan.

Building K-1003

The K-1003 building, located at the southeast corner of Avenue F and Fifth Street, has operated as the plant dispensary since 1944 and has housed offices for the Medical and Industrial Hygiene departments. The building is a 15,782-ft^2 one-story, frame structure with double-hung windows and wooden panel, half-glass doors. The wooden lapboard siding is now covered with asbestos-cement siding. The front porch has been enclosed and expanded and has aluminum storefront glazing.

Building K-1008-C

The K-1008-C building was built in the mid-1940s as part of the original war-time construction with some upgrades for various uses over the years. The building is divided into four sections. The north end is a health physics office used for training activities. A portion of the east side of the building is occupied by a women's change house and a large lunch room. A site-wide respirator cleaning unit occupies a large portion of the west end of the building. A distribution center for work clothes occupies the remainder of the building on the west side. The building is wood framed with asbestos-cement siding. The foundation of the structure is a concrete slab. This is an active facility.

Building K-1019-5A

The K-1019 numbered series of structures were bus stop shelters positioned around the K-25 Site. These structures were generally located near major portals in the plant site and were provided for personnel awaiting transportation during adverse weather conditions. The original shelters were constructed of metal pipe frames covered with

corrugated asbestos panels. The K-1019-5A shelter is the only original shelter that was not replaced in the mid-1970s by three-sided, sheet-metal shelters.

Building K-1021

Building K-1021 was constructed in 1946 as Fire Station #1 for the K-25 Site. It is a one-story, "L" shaped, frame and brick building measuring 102-ft long × 70-ft overall width by 14 to 15.5-ft average height. The building has concrete foundations and flooring. The main building has asbestos-cement type siding and a wooden roof covered by composite shingles.

In 1959, a hose-drying tower was constructed on the east side of K-1021. The tower is approximately 35-ft tall. It is constructed with a steel frame with transite siding and roof. An overhead one-half ton hoist is mounted at the top of the tower. In 1961, an addition to K-1021 was constructed on the north side of the hose-drying tower and designated as K-1021-A. The addition is a single room measuring 22 ft × 22 ft and 9 ft high. The flooring and roof are concrete, and the roof is covered with tar and gravel.

In 1992, the old fire system alarm panel and instrumentation was removed. The facility paint was removed and disposed of and non-lead based paint was utilized to repaint all existing surfaces. Asbestos on pipe systems was removed and access to the upper portion of the hose-drying tower and hoist was eliminated by removal of the lower portion of the access ladder.

The building is presently being used by the ETTP Fire Department as a storage area for fire department equipment, hazardous materials response equipment, and hazardous materials response supplies.

Building K-1024

K-1024, a 4,759-ft^2 building located in the K-25 building courtyard, was built in 1945 as a maintenance shop for repair and calibration of instruments used in the control and operation of the K-25 uranium enrichment process. A building addition to K-1024 in 1956 enclosed the courtyard of what had previously been a horseshoe-shaped building. After relocation of the building's instrument maintenance shop to K-1035 in 1963, K-1024 was used for a centrifuge development laboratory and a filter test facility. The building is a one story, wood-frame structure with cement/asbestos siding.

Building K-1028-45

Building K-1028-45 is the designation given to the gate house at Portal 4 and five additional small structures, all of which share a common steel-framed, flat roof. These structures were constructed in 1954. All buildings are one story and are constructed with concrete masonry walls, a window, and a common concrete slab-on-grade floor. The easternmost building has a section of concrete masonry unit walls. The westernmost portion of the building is the Portal 4 gate house. It is approximately 30 ft × 30 ft in plan and has windows on four sides. Pedestrian traffic through Portal 4 is accomplished through turnstiles located on the east and west sides of the gate house. Additionally, a vehicle gate through the portal is located on the west side of the gate house.

Building K-1101

The K-1101 nitrogen building and air plant is a 30,000-ft^2 steel-frame building with corrugated transite siding, located at the north end of the K-25 building courtyard. Beginning in the 1940s, this one-story building supported gaseous diffusion operations through the production of nitrogen gas and dry air. The facility is still in operation.

DETERMINATION: DOE ORO personnel have determined that the proposed action for demolition of these 108 buildings/structures at the ETTP would have an adverse effect on the historical character of these buildings/structures as well as on the K-25 Site Main Plant and Powerhouse Historic Districts. DOE ORO personnel have reviewed this proposed project in accordance with the *Cultural Resource Management Plan DOE Oak Ridge Reservation Anderson and Roane Counties, Tennessee,* DOE/ORO-2085 *(CRMP).* The proposed demolition of these facilities is addressed in the CRMP in Sections 5.1.1.3.A.2.b (2) and 5.1.4.2.

The ETTP *Cultural Resources Survey* (JE/EM-41) identified ninety-nine of these buildings/structures as contributing properties to the K-25 Site Main Plant and Power House Historic Districts, and nine buildings/structures as eligible for inclusion in the National Register of Historic Places. DOE ORO has consulted with the SHPO in accordance with Section 106 of the National Historic Preservation Act (NHPA), 16 U.S.C. § 470, and its implementing regulations (36 CFR Part 800) to resolve any adverse effects of demolition of 108 buildings/structures at the ETTP. DOE ORO, the SHPO, and other consulting parties have agreed upon and executed an MOA, and implementation of its terms serve as evidence that DOE ORO has afforded the SHPO an opportunity to comment on the 108 buildings/structures demolition project at the ETTP and that DOE has taken into account the effects of this project on these historic properties.

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Figure 1