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Department of Energy
Richland Operations Office
P.O. Box 550
Richland, Washington 99352

OCT 26 2007

07-SED-0402

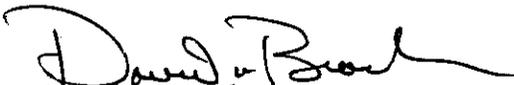
Ms. Greta P. Davis
Nuclear Waste Program
State of Washington
Department of Ecology
3100 Port of Benton Blvd.
Richland, Washington 99354

Dear Ms. Davis:

TRANSMITTAL OF THE 1706-KE WASTE TREATMENT SYSTEM PART A FORM,
CLOSURE PLAN, AND STATE ENVIRONMENTAL POLICY ACT ENVIRONMENTAL
CHECKLIST (TSD: T-1-3)

This letter transmits the 1706-KE Waste Treatment System Part A Form, Revision 6, Closure Plan, and State Environmental Policy Act Environmental Checklist to support incorporation of the 1706-KE Waste Treatment System into the Hanford Facility Resource Conservation and Recovery Act Permit, Part V. A draft of the Part A Form State Environmental Policy Act Environmental Checklist was provided to Ecology staff electronically for review and comment. Comments received were addressed and incorporated. The U.S. Department of Energy, Richland Operations Office is requesting approval of the Part A Form, Revision 6. If you have any questions, please contact me, or your staff may contact Rob G. Hastings, Acting Assistant Manager for Safety and Engineering, on (509) 376-9824.

Sincerely,


David A. Brockman
Manager

SED:ACM

Enclosures

cc: See page 2

RECEIVED
NOV 01 2007
EDMC

Ms. Greta P. Davis
07-SED-0402

-2-

cc:w/encl:

D. Bartus, EPA

Administrative Record, HF RCRA Permit, TSD: T-1-3 H6-08

Environmental Portal, LMSI

Ecology NWP Library

HF Operating Record (S. A. Thompson, FHI)

cc w/o encl:

G. Bohnee, NPT

L. J. Cusack, Ecology

R. Gay, CTUIR

J. A. Hedges, Ecology

R. Jim, YN

J. L. Nuzum, FHI

J. B. Price, Ecology

J. A. Vanni, Ecology

Enclosure 1

1706-KE Waste Treatment System
Part A Form, Revision 6

	WASHINGTON STATE DEPARTMENT OF E C O L O G Y	<h2 style="margin: 0;">Dangerous Waste Permit Application Part A Form</h2>
--	---	--

Date Received	Reviewed by:	Date:							
Month Day Year	Approved by:	Date:							

I. This form is submitted to: (place an "X" in the appropriate box)

<input type="checkbox"/>	Request modification to a final status permit (commonly called a "Part B" permit)
<input checked="" type="checkbox"/>	Request a change under interim status
<input type="checkbox"/>	Apply for a final status permit. This includes the application for the initial final status permit for a site or for a permit renewal (i.e., a new permit to replace an expiring permit).
<input type="checkbox"/>	Establish interim status because of the wastes newly regulated on: _____ (Date)
List waste codes: _____	

II. EPA/State ID Number

W	A	7	8	9	0	0	0	8	9	6	7
---	---	---	---	---	---	---	---	---	---	---	---

III. Name of Facility

US Department of Energy - Hanford Facility

IV. Facility Location (Physical address not P.O. Box or Route Number)

A. Street

825 Jadwin

City or Town	State	ZIP Code
Richland	WA	99352

County Code (if known)	County Name
0 0 5	Benton

B. Land Type	C. Geographic Location	D. Facility Existence Date
	Latitude (degrees, mins, secs) Longitude (degrees, mins, secs)	Month Day Year
F S E E T O P O M A P		0 3 2 2 1 9 4 3

V. Facility Mailing Address

Street or P.O. Box

P.O. Box 550

City or Town	State	ZIP Code
Richland	WA	99352

VI. Facility contact (Person to be contacted regarding waste activities at facility)													
Name (last)						(first)							
Brockman						David							
Job Title						Phone Number (area code and number)							
Manager						(509) 376-7395							
Contact Address													
Street or P.O. Box													
P.O. Box 550													
City or Town						State		ZIP Code					
Richland						WA		99352					
VII. Facility Operator Information													
A. Name						Phone Number (area code and number)							
Department of Energy Owner/Operator Fluor Hanford Co-Operator* for 1706-KE Waste Treatment System						(509) 376-7395 (509) 376-3576*							
Street or P.O. Box													
P.O. Box 550 P.O. Box 1000*													
City or Town						State		ZIP Code					
Richland						WA		99352					
B. Operator Type		F											
C. Does the name in VII.A reflect a proposed change in operator?						<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No							
If yes, provide the scheduled date for the change:						Month		Day		Year			
D. Is the name listed in VII.A. also the owner? If yes, skip to Section VIII.C.						<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No							
VIII. Facility Owner Information													
A. Name						Phone Number (area code and number)							
David A. Brockman, Operator/Facility-Property Owner						(509) 376-7395							
Street or P.O. Box													
P.O. Box 550													
City or Town						State		ZIP Code					
Richland						WA		99352					
B. Operator Type		F											
C. Does the name in VII.A reflect a proposed change in operator?						<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No							
If yes, provide the scheduled date for the change:						Month		Day		Year			
IX. NAICS Codes (5/6 digit codes)													
A. First						B. Second							
5	6	2	2	1		9	2	4	1	1	0	Administration of Air & Water Resource & Solid Waste Management Programs	
C. Third						D. Fourth							
5	7	4	1	7	0	9	9	9	9	9	9	Research & Development in the Physical, Engineering, & Life Sciences	Unclassified Establishments

X. Other Environmental Permits (see instructions)													
A. Permit Type		B. Permit Number										C. Description	

XI. Nature of Business (provide a brief description that includes both dangerous waste and non-dangerous waste areas and activities)

S02, T04

The 1706-KE Waste Treatment System was designed and installed to begin waste management operations in July 1986. The unit was designed and installed to treat mixed waste generated in the laboratories of the 1706-KE Building. The majority of the waste was expected to be acidic or caustic solutions (D002, characteristic, corrosive, dangerous waste). The 1706-KE Waste Treatment System consisted of a 2,082-liter (550-gallon) waste accumulation tank, a 0.14-cubic meter (5-cubic foot) mixed-bed resin ion exchange column, an 114-liter (30-gallon) evaporator unit, and a 363-liter (96-gallon) condensate collection tank.

Waste generated in the 1706-KE Building was transferred from the waste accumulation tank to the ion exchange column and then continuously recirculated to remove the ionic constituents from the waste stream. The waste was transferred to the evaporator unit. The evaporator unit heated and boiled the liquid waste to steam. The steam condensed and collected in the 363-liter (96-gallon) condensate collection tank with the exhaust from the evaporation unit being passed through a HEPA filter prior to discharge.

Operation of this unit was ceased shortly after initial startup due to the unanticipated anomalies experienced in the operating system. The maximum process design capacities if the unit had been in operation for tank storage (S02) is 2,445 liters (646 gallons) and for tank treatment-other (T04) is 5,678 liters (1,500 gallons).

The 1706-KE WTS has not been operated since 1987. All waste, with the possible exception of a heel in the waste accumulation tank, was removed in March 1994. Closure of the 1706-KE Waste Treatment System will be integrated with the CERCLA Remedial Action for the 100 Area Remaining Sites Record of Decision. Closure plan documentation shall be provided to Ecology through integration with CERCLA documentation.

EXAMPLE FOR COMPLETING ITEMS XII and XIII (shown in lines numbered X-1, X-2, and X-3 below): A facility has two storage tanks that hold 1200 gallons and 400 gallons respectively. There is also treatment in tanks at 20 gallons/hr. Finally, a one-quarter acre area that is two meters deep will undergo *in situ vitrification*.

Section XII. Process Codes and Design Capacities								Section XIII. Other Process Codes						
Line Number	A. Process Codes (enter code)			B. Process Design Capacity		C. Process Total Number of Units	Line Number	A. Process Codes (enter code)			B Process Design Capacity		C. Process Total Number of Units	D. Process Description
				1. Amount	2. Unit of Measure (enter code)						1. Amount	2. Unit of Measure (enter code)		
X 1	S	0	2	1,600	G	002	X 1	T	0	4	700	C	001	In situ vitrification
X 2	T	0	3	20	E	001								
X 3	T	0	4	700	C	001								
1	S	0	2	2,445	L	004	1							
2	T	0	4	5,678	V	004	2							
3							3							
4							4							
5							5							
6							6							
7							7							
8							1 8							
9							1 9							
1 0							1 0							
1 1							1 1							
1 2							1 2							
1 3							1 3							
1 4							1 4							
1 5							1 5							
1 6							1 6							
1 7							1 7							
1 8							1 8							
1 9							1 9							
2 0							2 0							
2 1							2 1							
2 2							2 2							
2 3							2 3							
2 4							2 4							
2 5							2 5							

XIV. Description of Dangerous Wastes

Example for completing this section: A facility will receive three non-listed wastes, then store and treat them on-site. Two wastes are corrosive only, with the facility receiving and storing the wastes in containers. There will be about 200 pounds per year of each of these two wastes, which will be neutralized in a tank. The other waste is corrosive and ignitable and will be neutralized then blended into hazardous waste fuel. There will be about 100 pounds per year of that waste, which will be received in bulk and put into tanks.

Line Number	A. Dangerous Waste No. (enter code)	B. Estimated Annual Quantity of Waste	C. Unit of Measure (enter code)	D. Processes											
				(1) Process Codes (enter)						(2) Process Description [If a code is not entered in D (1)]					
X 1	D 0 0 2	400	P	S	0	1	T	0	1						
X 2	D 0 0 1	100	P	S	0	2	T	0	1						
X 3	D 0 0 2									Included with above					
1	D 0 0 2	6,804	K	S	0	2	T	0	4						
2															
3															
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24															
25															

XV. Map

Attach to this application a topographic map of the area extending to at least one (1) mile beyond property boundaries. The map must show the outline of the facility; the location of each of its existing and proposed intake and discharge structures; each of its dangerous waste treatment, storage, recycling, or disposal units; and each well where fluids are injected underground. Include all springs, rivers, and other surface water bodies in this map area, plus drinking water wells listed in public records or otherwise known to the applicant within ¼ mile of the facility property boundary. The instructions provide additional information on meeting these requirements.

XVI. Facility Drawing

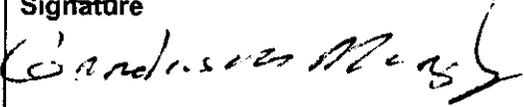
All existing facilities must include a scale drawing of the facility (refer to instructions for more detail).

XVII. Photographs

All existing facilities must include photographs (aerial or ground-level) that clearly delineate all existing structures; existing storage, treatment, recycling, and disposal areas; and sites of future storage, treatment, recycling, or disposal areas (refer to instructions for more detail).

XVIII. Certifications

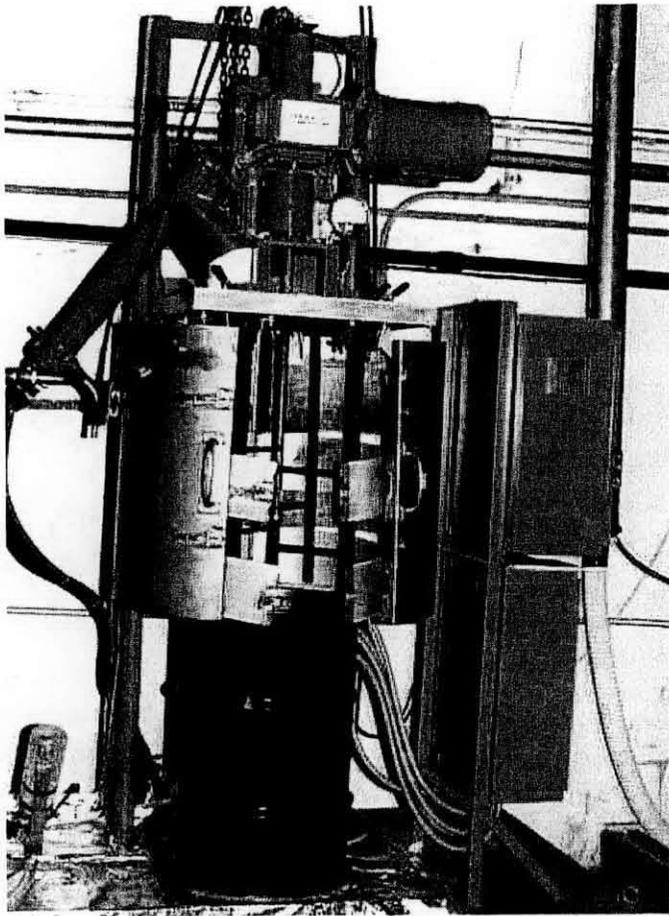
I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

<p>Operator Name and Official Title (type or print) David A. Brockman, Manager U.S. Department of Energy Richland Operations Office</p>	<p>Signature </p>	<p>Date Signed 10/26/07</p>
<p>Co-Operator* Name and Official Title (type or print) Cornelius M. Murphy President and Chief Executive Officer Fluor Hanford</p>	<p>Signature </p>	<p>Date Signed 10/18/07</p>
<p>Co-Operator* – Address and Telephone Number 2420 Stevens Center P.O. Box 1000 Richland, WA 99352 (509) 376-3576</p>		
<p>Facility-Property Owner Name and Official Title (type or print) David A. Brockman, Manager U.S. Department of Energy Richland Operations Office</p>	<p>Signature </p>	<p>Date Signed 10/26/07</p>

Comments

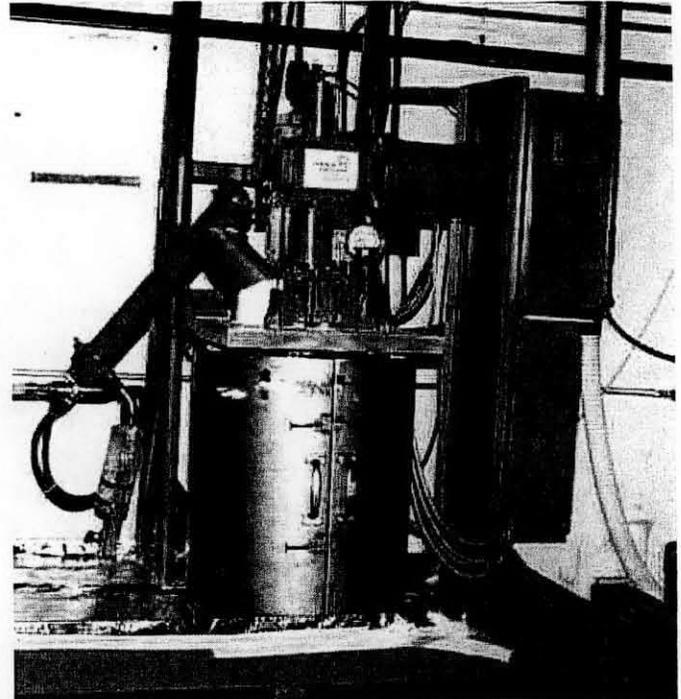
Empty comment box

1706-KE Waste Treatment System



Solidification Unit in Up Position
132285-6CN

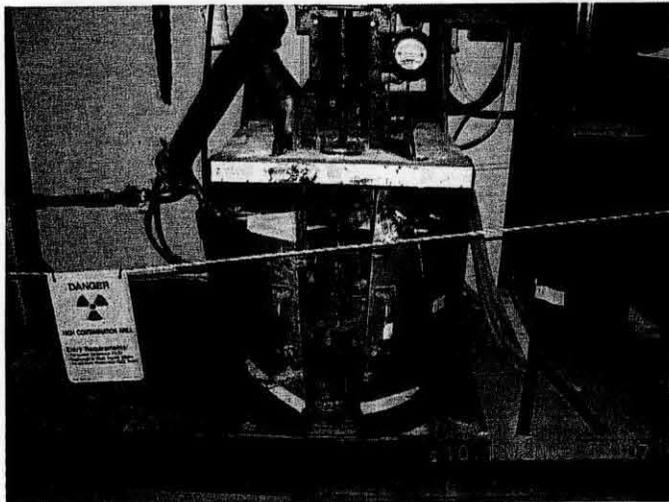
(Photo Taken 1986)



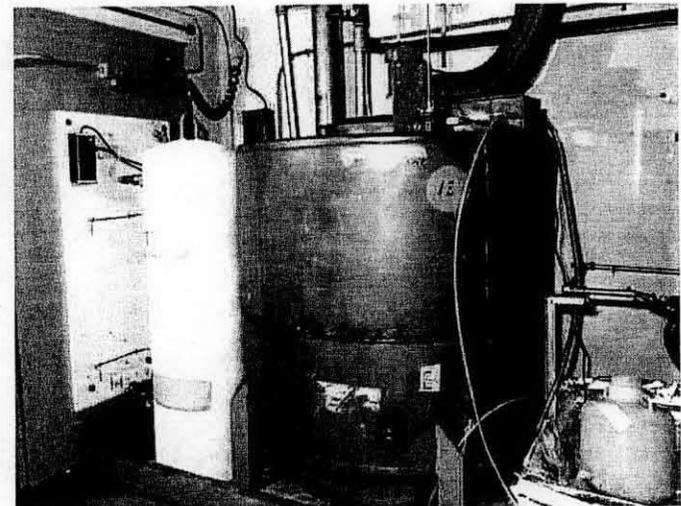
Solidification Unit in Down Position Evaporating
Waste

8700734-8CN

Photo Taken 1987



Solidification Unit

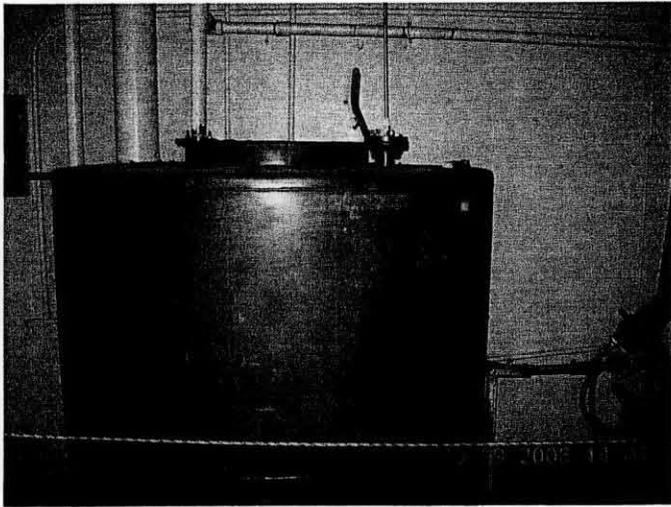


Ion Exchange Column & Waste Accumulation Tank
8700734-1CN

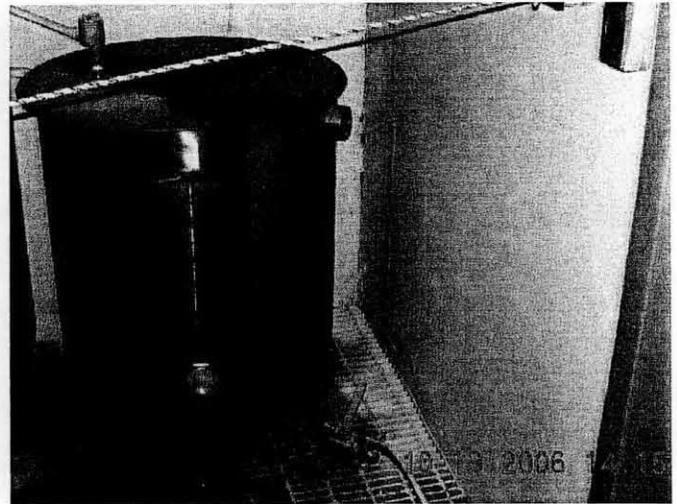
Photo Taken 1987

Note: Ion Exchange Column has been removed since
photograph was taken

1706-KE Waste Treatment System

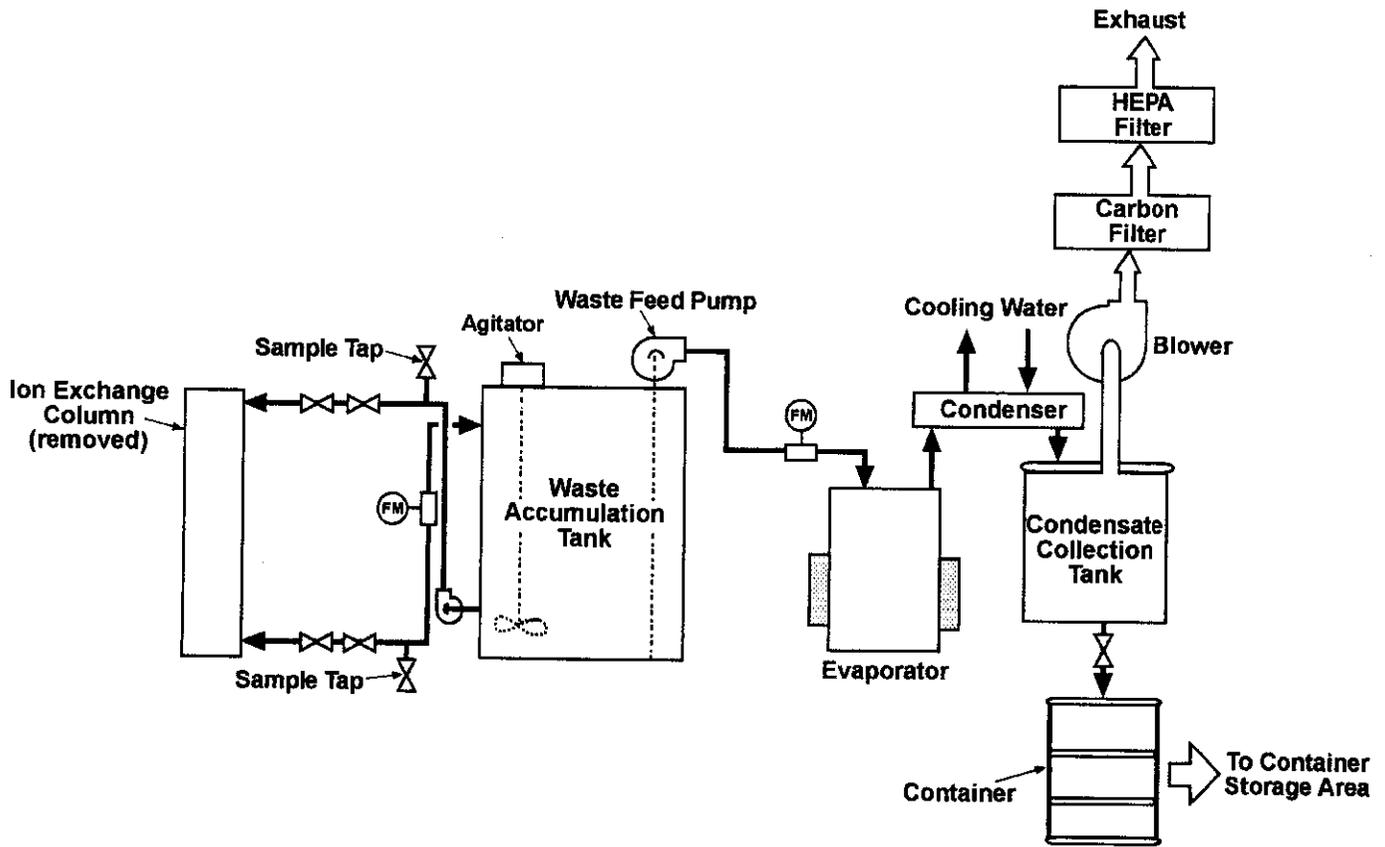


Waste Storage Tank



Condensate Tank

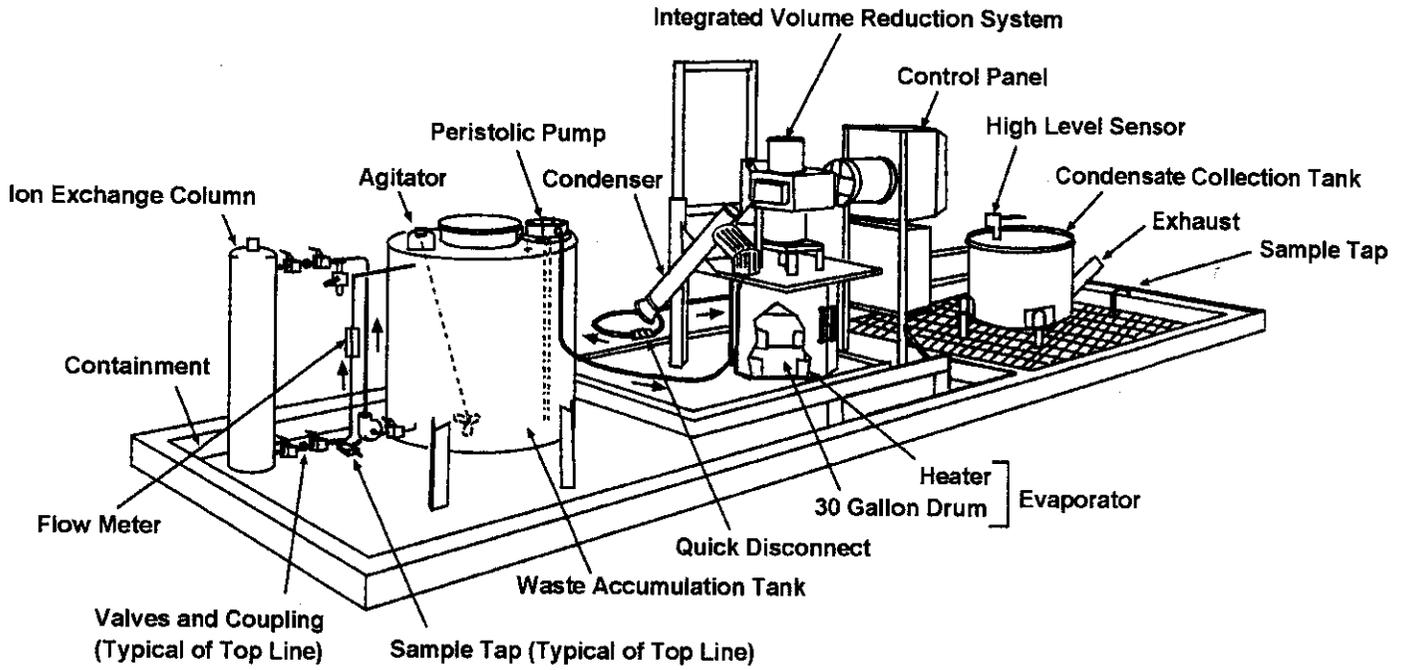
1706-KE Waste Treatment System Process Flow Diagram



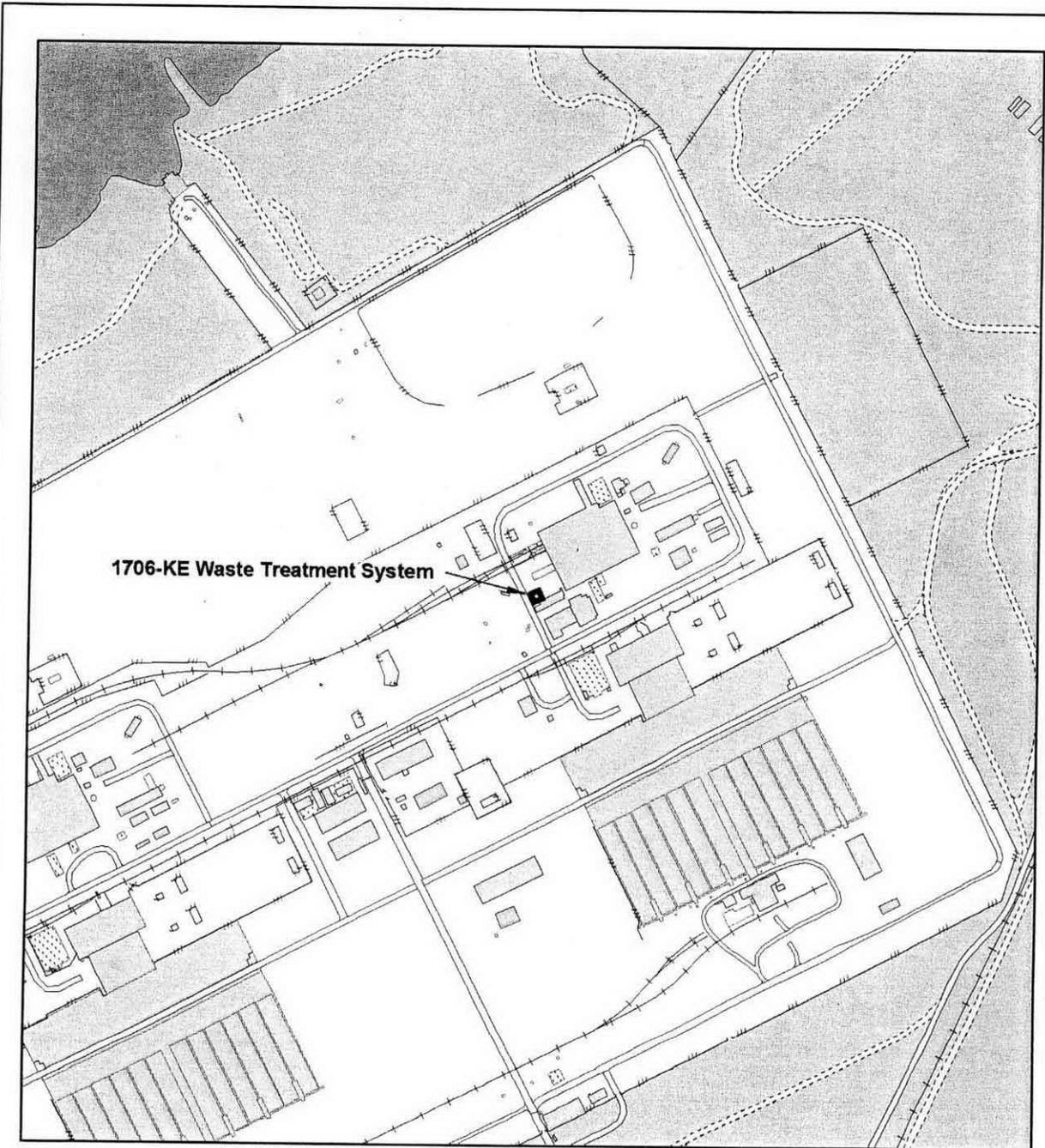
FM = Flow Meter
HEPA = High-Efficiency Particulate Air

M0703-1.1
3-11-07

1706-KE Waste Treatment System Design



M0703-1.2
3-26-07



1706-KE Waste Treatment System

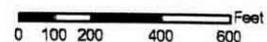
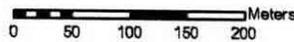
Prepared for:
 US DEPARTMENT OF ENERGY
 RICHLAND OPERATIONS OFFICE



Created and Published by: Central Mapping Services
 Fluor Hanford, Richland, WA (509) 376-8759

INTENDED USE: REFERENCE ONLY

- | | |
|---------------------|-----------------------|
| TSD Unit Boundary | Buildings and Mobiles |
| DOE Operating Areas | Structures |
| Hanford Facility | Concrete |
| Columbia River | Railroads |
| Major Roads | Fences |
| Service Roads | |



C:\Projects\RCRA_TSD\050614_2ndPriorityFacilityTopos2005_Thompson\Maps\050819_1706KEWasteTreatmentSystem_LineDwg_85x11_Rev0.mxd - 8/31/2005 @ 7:52:46 AM

Enclosure 2

1706-KE Waste Treatment System
Closure Plan

1			1706-KE Waste Treatment System Closure Plan	
2	1.0	1706-KE WASTE TREATMENT SYSTEM CLOSURE PLAN		1
3	1.1	FOREWORD		1
4	1.2	INTRODUCTION.....		1
5	2.0	SYSTEM AND PROCESS DESCRIPTION		2
6	3.0	CLOSURE PLAN		2
7	3.1	CLOSURE PERFORMANCE STANDARD		2
8	3.1.1	Removal of Tank System Components		3
9	3.2	CLOSURE ACTIVITIES.....		3
10	3.2.1	Waste Inventory Removal.....		3
11	3.2.2	Process Equipment Removal.....		3
12	3.2.3	Closure Certification		3
13	4.0	SCHEDULE FOR CLOSURE		3
14	5.0	REFERENCES		3
15				

1 **Acronyms**

2	CERCLA	<i>Comprehensive Environmental Response, Compensation, and Liability Act of 1980</i>
3	CFR	<i>Code of Federal Regulations</i>
4	D4	deactivation, decontamination, decommissioning, and demolition
5	DOE	U. S. Department of Energy
6	Ecology	Washington State Department of Ecology
7	EE/CA	Engineering Evaluation/Cost Analysis
8	EPA	U.S. Environmental Protection Agency
9	ERDF	Environmental Restoration Disposal Facility
10	ETF	Effluent Treatment Facility
11	HEPA	high-efficiency particulate air
12	ROD	Record of Decision
13	RCRA	<i>Resource Conservation and Recovery Act of 1976</i>
14	TPA, Tri-Party	<i>Hanford Federal Facility Agreement and Consent Order</i>
15	Agreement	
16	TSD	treatment, storage, and disposal
17	WAC	<i>Washington Administrative Code</i>
18	WTS	Waste Treatment System
19		

1.0 1706-KE WASTE TREATMENT SYSTEM CLOSURE PLAN

1.1 FOREWORD

This closure plan describes the planned activities and performance standards for closing the 1706-KE Waste Treatment System a *Resource Conservation and Recovery Act of 1976* (RCRA) treatment unit. The *Hanford Facility Dangerous Waste Permit Application* is considered to be a single application organized into a *General Information Portion*, DOE/RL-91-28 (DOE-RL 1991), and a *Unit-Specific Portion*, *Hanford Facility Dangerous Waste Part A Permit Application, Vol. 1-3*, DOE/RL-88-21 (DOE-RL 1988). The scope of the *General Information Portion* includes information used to discuss units undergoing closure, such as the 1706-KE Waste Treatment System (the unit addressed in this document).

The *Engineering Evaluation/Cost Analysis for the 105-KE and 105-KW Reactor Facilities and Ancillary Facilities*, DOE/RL-2005-86 (EE/CA) (DOE-RL 2005), that was prepared by the U.S. Department of Energy (DOE), recommended deactivation, decontamination, decommissioning, and demolition (D4) of numerous ancillary facilities in the 100-K Area of the Hanford Site. One of the ancillary facilities, the 1706-KE Building, has a small area that is called the "1706-KE Waste Treatment System", which is regulated as a treatment, storage, and disposal (TSD) unit under RCRA. This TSD unit is composed of several major components including an accumulation tank, an ion-exchange column, an evaporator unit, a condensate collection tank, and a high-efficiency particulate air (HEPA) filtration unit.

The Tri-Parties have agreed to integrate the cleanup and closure of the 1706-KE TSD unit with the *Comprehensive Environmental Response, Compensation, and Liability Act of 1980* (CERCLA) process. The agreement called for the portion of the 1706-KE Building that includes the TSD unit to be remediated under the authority of the *Remaining Sites Record of Decision (ROD)* (EPA 1999) as provided by the *Explanation of Significant Differences for the 100 Area Remaining Sites Interim Remedial Action Record of Decision* (EPA 2004). However, the removal, treatment (as necessary) and disposal of all ancillary equipment directly related to the 1706-KE Waste Treatment System will be carried out as authorized within the scope of the *Action Memorandum for the Non-Time-Critical Removal Action for the 105-KE and 105-KW Reactor Facilities and Ancillary Facilities* (EPA 2006).

Clean closure is planned for the 1706-KE Waste Treatment System and will be accomplished by using the closure standard in WAC 173-303-610. The closure performance standard is physical removal and disposal of the WTS components. Because the intention is to clean close the unit, post-closure activities are not applicable to this closure plan. If it is determined that clean closure is not possible or is environmentally impractical, the closure plan will be modified to address required additional closure or post-closure activities.

1.2 INTRODUCTION

This closure plan describes the planned activities and performance standards for closing the 1706-KE Waste Treatment System (WTS), a RCRA treatment unit.

The 1706-KE Waste Treatment System is located within the 1706-KE Building in the 100-K Area of the Hanford Facility. Currently the 1706-KE Waste Treatment System is inactive. The 1706-KE WTS has not been operated since 1987. All waste, with the possible exception of a heel in the waste accumulation tank, was removed in March 1994.

The schedule of closure activities under this plan supports completion of the *Hanford Federal Facility Agreement and Consent Order* (Tri-Party Agreement/TPA) Milestone M-16-52, "Initiate Response Actions for the Remaining Waste Sites for the 100-K Area including closure of the 1706-KE Waste Treatment System in accordance with Section 5.5 of the Agreement Action Plan" by July 31, 2009 (Ecology, et al 1989).

August 15, 2007

1 Under this closure plan, the 1706-KE Waste Treatment System will undergo clean closure to the
2 performance standards of Washington Administrative Code (WAC) 173-303-610 with respect to all
3 dangerous waste contamination from RCRA operations of the 1706-KE Waste Treatment System.
4 Because the intention is to clean close the treatment

5 Post-Closure activities are not applicable to this closure plan. To clean close the unit, the unit and
6 ancillary equipment will be removed and disposed of. If it is determined that clean closure is not possible
7 or is environmentally impractical, the closure plan will be modified to address required additional closure
8 or post-closure activities.

9 Because dangerous waste does not include source, special nuclear, and by-product material components
10 of mixed waste, radionuclides are not within the scope of this documentation. Any information on
11 radionuclides is provided only for general knowledge.

12 2.0 SYSTEM AND PROCESS DESCRIPTION

13 The 1706-KE Waste Treatment System (WTS) was designed and installed to begin waste management
14 operations in July 1986. The unit was procured to treat mixed waste generated in the laboratories of the
15 1706-KE Building. The 1706-KE WTS consisted of a 2,082-liter (550-gallon) waste accumulation tank, a
16 0.14-cubic meter (5-cubic foot) mixed-bed resin ion exchange column, an 114-liter (30-gallon) evaporator
17 unit, and a 363-liter (96-gallon) condensate collection tank.

18 The maximum process design capacities of the unit for tank storage (S01) are 2,445 liters (646 gallons)
19 and for tank treatment-other (T04) is 5,678 liters (1,500 gallons).

20 Waste generated in the 1706-KE Building was transferred from the waste accumulation tank to the ion
21 exchange column and then continuously recirculated to remove the ionic constituents from the waste
22 stream. The waste was transferred to the evaporator unit. The evaporator unit heated and boiled the
23 liquid waste to steam. The steam condensed and collected in the 363-liter (96-gallon) condensate
24 collection tank with the exhaust from the evaporation unit being passed through a HEPA filter prior to
25 discharge.

26 Operation of this unit was ceased shortly after initial startup due to the unanticipated anomalies
27 experienced in the operating system. The 1706-KE WTS has not been operated since 1987. All waste,
28 with the possible exception of a heel in the waste accumulation tank, was removed in March 1994.

29 The dangerous waste numbers associated with the unit are listed on the Part A Form.

30 The 1706-KE Building was designed and installed to treat a variety of laboratory waste. The majority of
31 this waste was expected to be acidic or caustic solutions (D002, characteristic, corrosive, dangerous
32 waste). Approximately 6,804 kilograms (15,000 pounds) of waste could have been treated in the waste
33 treatment system per year.

34 3.0 CLOSURE PLAN

35 The following sections address performance standards, waste removal, and decontamination standards.

36 3.1 CLOSURE PERFORMANCE STANDARD

37 Clean closure of the 1706-KE Waste Treatment System will be accomplished by using the closure
38 standard in WAC 173-303-610(2)(b)(ii). To clean close the unit, the unit and ancillary equipment will be
39 removed and disposed of.

40 This closure plan proposes one-closure performance standards. The closure standard is the physical
41 removal and disposal of the tank system components.

August 15, 2007

1 **3.1.1 Removal of Tank System Components**

2 When removed for disposal, the components will be designated and sent to an onsite or offsite facility for
3 appropriate disposal as radioactive or mixed waste. The removal and disposal activities will be
4 coordinated with the CERCLA removal actions for the 100-KE and KW Reactor Facilities and Ancillary
5 Facilities.

6 **3.2 CLOSURE ACTIVITIES**

7 This closure plan provides for the following:

- 8 • Waste inventory removal
9 • Process equipment removal
10 • Waste disposal
11 • Certification that closure activities were completed in accordance with the approved closure plan

12 Closure of the permitted unit will consist of actions discussed in the following sections.

13 **3.2.1 Waste Inventory Removal**

14 No waste associated with the treatment unit activities remain in the treatment unit, with the possible
15 exception of a heel in the waste accumulation tank. Any material in the accumulation tank at the time of
16 closure will be designated and managed appropriately in accordance with WAC 173-303. Liquid waste
17 will either be sent to the Hanford Site's Effluent Treatment Facility (ETF) or treated to meet the
18 acceptance criteria of the receiving facility.

19 **3.2.2 Process Equipment Removal**

20 Equipment used in TSD unit operations will be removed from the building and sent to an approved
21 facility for proper disposal as waste. Waste generated from the removal action that meets Environmental
22 Restoration Disposal Facility (ERDF) waste acceptance criteria will be disposed at ERDF. If the waste
23 does not meet ERDF waste acceptance criteria, it will be staged at the 100-K Area or ERDF while a
24 treatment plan is developed. After any necessary treatment, the waste will be disposed at ERDF or
25 another approved facility.

26 **3.2.3 Closure Certification**

27 Certification of closure will be submitted in accordance with Hanford Facility Dangerous Waste Permit
28 Application, General Information Portion (DOE-RL 1991).

29 **4.0 SCHEDULE FOR CLOSURE**

30 Closure activities will coincide with the overall 100-KE and KW Reactor Facilities and Ancillary
31 Facilities CERCLA removal action. Closure activities will start by July 31, 2009 (per TPA
32 Milestone M-16-52) and be completed within 180 days. If closure plan revisions are necessary to achieve
33 clean closure, a modification to this closure plan will be submitted to Ecology.

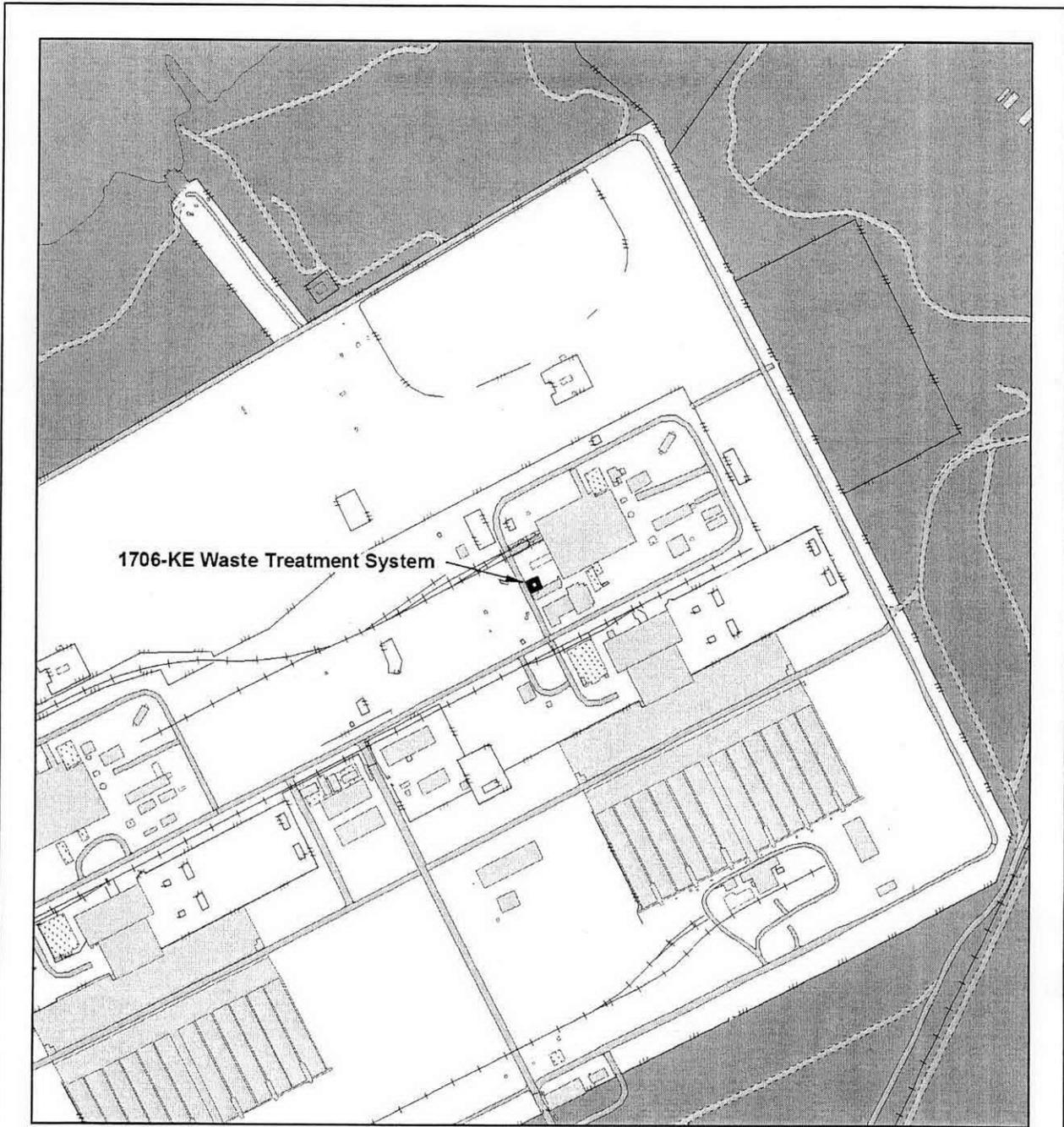
34 **5.0 REFERENCES**

35 DOE-RL, 2005, *Engineering Evaluation/Cost Analysis for the 105-KE and 105-KW Reactor Facilities*
36 *and Ancillary Facilities*, DOE/RL-2005-86, Rev. 0, U.S. Department of Energy, Richland Operations
37 Office, Richland, Washington.

38 Ecology, EPA, and DOE, 1989, *Hanford Federal Facility Agreement and Consent Order*, 2 vols., as
39 amended, Washington State Department of Ecology, U.S. Environmental Protection Agency, and
40 U.S. Department of Energy, Olympia, Washington.

August 15, 2007

- 1 EPA, 1999, Interim Action Record of Decision for the 100-BC-1, 100-BC-2, 100-DR-1, 100-DR-2,
2 100-FR-1, 100-FR-2, 100-HR-1, 100-HR-2, 100-KR-1, 100-KR-2, 100-IU-2, 100-IU6, and 200-CW-3
3 Operable Units, Hanford Site, Benton County, Washington, U.S. Environmental Protection Agency,
4 Region 10, Seattle, Washington.
- 5 EPA, 2004, Explanation of Significant Differences for the 100 Area Remaining Sites Interim Remedial
6 Action Record of Decision, U.S. Environmental Protection Agency, Region 10, Seattle, Washington.
- 7 EPA, 2006, Action Memorandum for the Non-Time-Critical Removal Action for the 105-KE and
8 105-KW Reactor Facilities and Ancillary Facilities, U.S. Environmental Protection Agency, Region
9 10, Seattle, Washington.



1706-KE Waste Treatment System

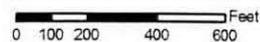
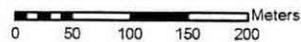
Prepared for:
US DEPARTMENT OF ENERGY
RICHLAND OPERATIONS OFFICE



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INTENDED USE: REFERENCE ONLY

- | | |
|---------------------|-----------------------|
| TSD Unit Boundary | Buildings and Mobiles |
| DOE Operating Areas | Structures |
| Hanford Facility | Concrete |
| Columbia River | Railroads |
| Major Roads | Fences |
| Service Roads | |



August 15, 2007

WA7890008967, Part V, Closure Unit 16
1706-KE Waste Treatment System

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Enclosure 3

1706-KE Waste Treatment System
State Environmental Policy Act (SEPA) Environmental Checklist

**STATE ENVIRONMENTAL POLICY ACT
Environmental Checklist**

1706-KE Waste Treatment System

Revision 0

September 2007

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1 **A. BACKGROUND**

2 **A.1. Project Name**

3 This *State Environmental Policy Act (SEPA) of 1971* Environmental Checklist is being submitted for the
4 closure of the 1706-KE Waste Treatment System. One of the ancillary facilities, the 1706-KE Building,
5 has a small area that is called the *1706-KE Waste Treatment System*, which is regulated as a treatment,
6 storage, and/or disposal (TSD) unit under *Resource Conservation and Recovery Act of 1976 (RCRA)*.
7 This TSD unit is composed of several major components including an accumulation tank, an
8 ion-exchange column, an evaporator unit, and a condensate collection tank, and a high-efficiency
9 particulate air (HEPA) filtration unit.

10 **A.2. Applicant Name**

11 U.S. Department of Energy, Richland Operations Office (DOE-RL)

12 **A.3. Applicant Address and Phone Number**

13 U.S. Department of Energy
14 Richland Operations Office
15 P.O. Box 550
16 Richland, Washington 99352

17 **Contact:**

18 David A. Brockman, Manager
19 Richland Operations Office
20 (509) 376-7395

21 **A.4. Date Checklist Prepared:**

22 September 2007

23 **A.5. Agency Requesting Checklist:**

24 Washington State Department of Ecology (Ecology)
25 P.O. Box 47600
26 Olympia, Washington 98504-7600

27 **A.6. Timing or Schedule**

28 This SEPA Environmental Checklist is submitted concurrently with the RCRA Part A Form, and Closure
29 Plan for the 1706-KE Waste Treatment System.

30 **A.7. Future Proposals**

31 Yes. The Tri-Parties have agreed to integrate the cleanup and closure of the 1706-KE TSD unit with the
32 *Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA)* process. The
33 agreement called for the portion of the 1706-KE Building that includes the TSD unit to be remediated
34 under the authority of the Remaining Sites Record of Decision (ROD) (EPA 1999) as provided by the
35 *Explanation of Significant Differences for the 100 Area Remaining Sites Interim Remedial Action Record*
36 *of Decision*. However, the removal, treatment (as necessary) and disposal of all ancillary equipment
37 directly related to the 1706-KE Waste Treatment System will be carried out as authorized within the
38 scope of the *Action Memorandum for the Non-Time-Critical Removal Action for the 105-KE and 105-KW*
39 *Reactor Facilities and Ancillary Facilities*.

1 **A.8. Environmental Information**

- 2 • Work will be conducted in accordance with the *Remedial Design Report/Remedial Action Work Plan*
3 *for 100 Areas* (DOE/RL-96-17) Revision 5 or subsequent revisions
- 4 • *Engineering Evaluation/Cost Analysis for the 105-KE and 105-KW Reactor Facilities and Ancillary*
5 *Facilities*, DOE/RL-2005-86

6 General information concerning the Hanford Facility environment can be found in the *Hanford Site*
7 *National Environmental Policy Act (NEPA) Characterization*, PNNL-6415, Revision 17,
8 September 2005. This document is updated annually by Pacific Northwest National Laboratory (PNNL),
9 and provides current information concerning climate and meteorology, ecology, history and archeology,
10 socioeconomic, land use and noise levels, and geology and hydrology. These baseline data for the
11 Hanford Site and past activities are useful for evaluating proposed activities and their potential
12 environmental impacts.

13 **A.9. Pending Approvals**

14 No other applications are pending.

15 **A.10. Permit Information**

16 Ecology is the lead regulatory agency authorized to approve the RCRA closure plan in the Hanford
17 Facility RCRA Permit, WA7 89000 8967 (Part V, Closure Unit 16, 1706-KE Waste Treatment System)
18 pursuant to the requirements of WAC 173-303.

19 No other permits are known to be required at this time.

20 **A.11. Project Description**

21 The 1706-KE Waste Treatment System is located within the 1706-KE Building in the 100-K Area of the
22 Hanford Facility. Currently the 1706-KE Waste Treatment System is inactive. The 1706-KE Waste
23 Treatment System has not been operated since 1987. All waste, with the possible exception of a heel in
24 the waste accumulation tank, was removed in March 1994. Under the proposed closure, the 1706-KE
25 Waste Treatment System will undergo clean closure to the performance standards of WAC 173-303-610
26 with respect to all dangerous waste contamination from RCRA operations of the 1706-KE Waste
27 Treatment System. To clean close the unit and ancillary equipment will be removed and disposed of. If
28 it is determined that clean closure is not possible or is environmentally impractical, the closure plan will
29 be modified to address required additional closure or post-closure activities.

30 The 1706-KE Waste Treatment System was designed and installed to begin waste management
31 operations in July 1986. The unit was procured to treat mixed waste generated in the laboratories of the
32 1706-KE Building. The 1706-KE Waste Treatment System consisted of a 2,082-liter (550-gallon) waste
33 accumulation tank, a 0.14-cubic meter (5-cubic foot) mixed-bed resin ion exchange column, an 114-liter
34 (30-gallon) evaporator unit, and a 363-liter (96-gallon) condensate collection tank.

35 Waste generated in the 1706-KE Building was transferred from the waste accumulation tank to the ion
36 exchange column and then continuously recirculated to remove the ionic constituents from the waste
37 stream. The waste was transferred to the evaporator unit. The evaporator unit heated and boiled the
38 liquid waste to steam. The steam condensed and collected in the 363-liter (96-gallon) condensate
39 collection tank with the exhaust from the evaporation unit being passed through a HEPA filter prior to
40 discharge. Operation of this unit was ceased shortly after initial startup due to the unanticipated
41 anomalies experienced in the operating system.

1 Clean closure of the 1706-KE Waste Treatment System will be accomplished by using the closure
2 standard in WAC 173-303-610(2)(b)(ii) [i.e., the closure standard is the physical removal and disposal of
3 the tank system components].

4 A more detailed discussion of the waste types and known characteristics of the waste are provided in
5 Sections 3.0 and 4.0, respectively of the RCRA closure plan planned for incorporation into the Hanford
6 Facility RCRA Permit, WA7 89000 8967, Part V, Closure Unit 16, 1706-KE Waste Treatment System.

7 **A.12. Location**

8 The 1706-KE Waste Treatment System is located in the 100 K Area of the Hanford Facility. A map
9 showing the location is included in the RCRA Part A Form for the 1706-KE Waste Treatment System.

10

1 **B. ENVIRONMENTAL ELEMENTS**

2 **B.1. Earth**

3 **B.1.a. General site description**

4 Flat

5 **B.1.b. Percent slope**

6 The approximate slope of the land is less than 2 percent.

7 **B.1.c. Soil types**

8 Soil types consist mainly of eolian and fluvial sands and gravel. More detailed information concerning
9 specific soil classifications can be found in PNNL-6415, Revision 17. Farming is not permitted on the
10 Hanford Facility.

11 **B.1.d. Unstable soils**

12 No

13 **B.1.e. Purpose of fill, excavation, or grading**

14 Does not apply

15 **B.1.f. Erosion indicators**

16 No

17 **B.1.g. Impervious surfaces**

18 Does not apply

19 **B.1.h. Erosion control**

20 None

21 **B.2. Air**

22 **B.2.a. Air emission types**

23 Routine closure activities would generate dust. Vehicles used by personnel during 1706-KE Waste
24 Treatment System closure would generate minor amounts of exhaust.

25 An airborne release could occur as a result of upset conditions internally or externally. Such a release
26 would not exceed immediately dangerous to life and health concentrations outside the immediate area of
27 the spill/release because of the small quantity of material that is available for release.

28 **B.2.b. Off-site sources of air emissions and odors**

29 No

30 **B.2.c. Measures to reduce or control air emissions**

31 Good engineering practices would be followed, and actions would comply with onsite procedures
32 designed to protect the environment and personnel safety and health.

1 **B.3. Water**

2 **B.3.a. Surface Water**

3 **B.3.a.1 Water body on or near the site**

4 The Columbia River is in the vicinity of the 1706-KE Waste Treatment System.

5 **B.3.a.2 Work in, on, or near the water**

6 No. The 1706-KE Waste Treatment System is not within 200 feet of the Columbia River.

7 **B.3.a.3 Water body fill or dredge**

8 There would be no dredging or filling from or to surface water or wetlands.

9 **B.3.a.4 Surface water withdrawals and diversions**

10 No

11 **B.3.a.5 Floodplain**

12 The 1706-KE Waste Treatment System is within the 100-year and 500-year floodplains (PNNL-6415,
13 Revision 17).

14 **B.3.a.6 Discharge of waste**

15 No

16 **B.3.b. Ground water**

17 **B.3.b.1 Ground water be withdrawals and discharges**

18 No groundwater would be withdrawn in support of this project, and water would not be discharged to the
19 aquifer.

20 **B.3.b.2 Waste discharges to ground**

21 Does not apply

22 **B.3.c. Water runoff (including storm water)**

23 **B.3.c.1 Runoff source and flow**

24 The Hanford Facility receives only 15.2 to 17.8 centimeters of annual precipitation. Precipitation runs
25 off the existing buildings, parking areas, and the waste storage pad and seeps into the soil near these
26 areas. This precipitation does not reach the groundwater or surface waters.

27 **B.3.c.2 Waste or contamination of runoff**

28 Waste materials would not enter ground or surface waters. All waste materials would be contained.

29 **B.3.d. Mitigation for water impacts**

30 No surface, ground, or run-off water impacts are expected.

1 **B.4. Plants**

2 **B.4.a. Types of vegetation**

3 There is no vegetation on the 1706-KE Waste Treatment System site.

4 **B.4.b. Vegetation removal or alteration**

5 Does not apply

6 **B.4.c. Threatened and endangered species**

7 No threatened or endangered species are on the 1706-KE Waste Treatment System site. The Hanford
8 Facility contains some federal and state listed threatened and endangered plant and animal species.
9 Additional information on species can be found in PNNL-6415, Revision 17.

10 **B.4.d. Vegetation mitigation**

11 Does not apply

12 **B.5. Animals**

13 **B.5.a. Types of animals**

14 Birds: Raptors (burrowing owls, ferruginous, redtail, and Swainson's hawks), eagles, songbirds,
15 Mammals: deer, elk, coyotes, rabbits.

16 Additional information on animals can be found in PNNL-6415, Revision 17.

17 **B.5.b. Threatened and endangered species**

18 No federal and state listed threatened or endangered specie has been identified on the 1,450 square
19 kilometer Hanford Site. On June 28, 2007, the U. S. Department of the Interior took the American bald
20 eagle off the Federal List of Endangered and Threatened Wildlife and Plants. The Migratory Bird Treaty
21 Act and the Bald and Golden Eagle Protection Act will still protect the bald eagle.

22 The state listed white pelican, sandhill crane, and ferruginous hawk occur on or migrate through the
23 Hanford Site.

24 **B.5.c. Animal migration routes**

25 The Hanford Site is a part of the broad Pacific Flyway.

26 **B.5.d. Wildlife migration**

27 This project contains no specific measures to preserve or enhance wildlife.

28 **B.6. Energy and Natural Resources**

29 **B.6.a. Types of energy**

30 Electricity will be used at 1706-KE Waste Treatment System during closure. Diesel fuel will be used for
31 equipment during closure activities.

32 **B.6.b. Solar power interference**

33 No

1 **B.6.c. Mitigation**

2 Energy consumption is anticipated to be small, and energy conservation features readily are not
3 applicable to 1706-KE Waste Treatment System.

4 **B.7. Environmental Health**

5 **B.7.a. Environmental health hazards**

6 Possible environmental health hazards to personnel could arise from activities at 1706-KE Waste
7 Treatment System. The hazard could come from exposure to dangerous and/or mixed waste. Stringent
8 administrative controls and engineered barriers will be used to minimize the probability of even a minor
9 incident and/or accident. A chemical spill, release, fire, or explosion could occur only as a result of a
10 simultaneous breakdown in multiple barriers or a catastrophic natural forces event.

11 **B.7.a.1 Emergency services**

12 Hanford Site security, fire response, and ambulance services are on call at all times in the event of an
13 onsite emergency. Hanford Site emergency services personnel are trained specially to manage a variety
14 of circumstances involving chemical and/or mixed waste constituents and situations.

15 **B.7.a.2 Mitigation**

16 All personnel are trained to follow proper procedures during operations to minimize potential exposure.
17 The 1706-KE Waste Treatment System has systems for radiation monitoring, fire protection, and alarm
18 capability.

19 Chemical and radiological safety hazards would be mitigated by preventing direct contact with the
20 residual chemical constituents; and protective clothing, appropriate training, and respiratory protection
21 used by onsite personnel as necessary. As low as reasonably achievable (ALARA) principles are applied
22 during construction and operations.

23 **B.7.b. Noise**

24 **B.7.b.1 Noise in the area**

25 While there is a minor amount of traffic, operation, and equipment noise in the vicinity, it is not expected
26 to affect personnel at 1706-KE Waste Treatment System.

27 **B.7.b.2 Noise from the proposal**

28 Minor amounts of noise from traffic and equipment are expected during day shift hours for closure
29 activities.

30 **B.7.b.3 Mitigation for noise**

31 In the unlikely event that Occupational Safety and Health Administration noise standards would be
32 exceeded, appropriate measures to protect personnel would be employed.

33 **B.8. Land and Shoreline Use**

34 **B.8.a. Current uses**

35 The Hanford Facility is a single RCRA facility identified by the U.S. Environmental Protection Agency
36 (EPA)/State Identification Number WA7890008967 that consists of over 70 TSD units conducting
37 dangerous waste management activities. The Hanford Facility consists of all contiguous land, and

1 structures, other appurtenances, and improvements on the land, used for recycling, reusing, reclaiming,
2 transferring, storing, treating, or disposing of dangerous waste, which, for the purposes of the RCRA, are
3 owned by the U.S. Government and operated by the DOE-RL (excluding lands north and east of the
4 Columbia River, river islands, lands owned or used by the Bonneville Power Administration, lands
5 leased to Energy Northwest, and lands owned by or leased to Washington State).

6 **B.8.b. Agriculture uses**

7 No portion of the 100 K Area has been used for agricultural purposes since 1943.

8 **B.8.c. Structures**

9 Existing structures at 1706-KE Waste Treatment System are described in RCRA closure plan for the
10 1706-KE Waste Treatment System.

11 **B.8.d. Demolition**

12 No

13 **B.8.e. Zoning**

14 The Hanford Site is currently included in Public Land's designation in the Benton County
15 Comprehensive Plan (June 22, 1998) (internet address: http://www.co.benton.wa.us/comp_plan.htm).
16 The Plan is being revised, and will address the Hanford Site as a separate geographic component, or
17 *Sub-Area* with its own Land Use Plan (under development as Chapter 13 in the aforementioned Benton
18 County Comprehensive Plan).

19 **B.8.f. Comprehensive plan designation**

20 *The Hanford Comprehensive Land-Use Plan Environmental Impact Statement Record of Decision*
21 (64 FR 61615, November 12, 1999) stated that the Columbia River Corridor includes High-Intensity
22 Recreation, Low-Intensity Recreation, Conservation (Mining), and Preservation land-use designations.
23 Remediation activities will continue in the 100 Areas (i.e., 100-B/C, 100-KE, 100-KW, 100-N, 100-D,
24 100-DR, 100-H, and 100-F), and will be considered a pre-existing, nonconforming land use in the
25 Preservation land-use designation.

26 **B.8.g. Shoreline master program designation**

27 Does not apply

28 **B.8.h. Environmentally sensitive area**

29 No

30 **B.8.i. Persons living or working onsite**

31 None

32 **B.8.j. People displaced by the proposal**

33 None

34 **B.8.k. Mitigation of displacement**

35 Does not apply

- 1 **B.8.I. Consistency with plans and land use designations**
2 Does not apply (refer to Section 8.f.)
- 3 **B.9. Housing**
- 4 **B.9.a. Number of units and income level rating**
5 None
- 6 **B.9.b. Residential units eliminated**
7 None
- 8 **B.9.c. Housing mitigation**
9 Does not apply
- 10 **B.10. Aesthetics**
- 11 **B.10.a. Building height and exteriors**
12 The 1706-KE Building has an eave height of approximately 6.1 meters and is constructed of metal and
13 concrete.
- 14 **B.10.b. Views**
15 None
- 16 **B.10.c. Mitigation for aesthetics**
17 None
- 18 **B.11. Light and Glare**
- 19 **B.11.a. Types of light and glare**
20 None
- 21 **B.11.b. Safety and views**
22 No
- 23 **B.11.c. Off-site sources of light and glare**
24 None
- 25 **B.11.d. Mitigation for light and glare**
26 None
- 27 **B.12. Recreation**
- 28 **B.12.a. Recreational opportunities**
29 None

1 **B.12.b. Displaced recreational uses**

2 No

3 **B.12.c. Recreational mitigation**

4 None

5 **B.13. Historic and Cultural Preservation**

6 **B.13.a. Historic register**

7 Yes. The DOE-RL has concluded that the 1706-KE Building is a contributing property within the
8 Hanford Site Manhattan Project and Cold War Era Historic District recommended for individual
9 documentation as stipulated in Appendix C, Table 1 of the Programmatic Agreement for Maintenance,
10 Deactivation, Alteration, and Demolition of the Built Environment on the Hanford Site, Washington
11 (DOE/RL-96-77).

12 **B.13.b. Cultural site**

13 See response to B.13.a

14 **B.13.c. Mitigation for historic or cultural resource**

15 All closure activities at 1706-KE Waste Treatment System are evaluated to ensure additional impacts are
16 addressed.

17 **B.14. Transportation**

18 **B.14.a. Public streets and highways**

19 Does not apply

20 **B.14.b. Public transit**

21 The 1706-KE Waste Treatment System is not accessible to the public and is not served by public transit.

22 **B.14.c. Parking spaces**

23 None

24 **B.14.d. New roads and street improvements**

25 No

26 **B.14.e. Water, rail, air transportation**

27 No

28 **B.14.f. Trips per day**

29 None

30 **B.14.g. Transportation mitigation**

31 None

1 **B.15. Public Services**

2 **B.15.a. Public service demand**

3 No

4 **B.15.b. Mitigation**

5 Does not apply

6 **B.16. Utilities**

7 **B.16.a. Utilities**

8 Electricity, potable water, refuse service, telephone, and a sanitary sewer system are available in the
9 100 K Area.

10 **B.16.b. Utility needs**

11 Existing utilities would be used to support 1706-KE Waste Treatment System closure activities.

1 **SIGNATURES**

- 2 The above answers are true and complete to the best of my knowledge. I understand that the lead agency
3 is relying on them to make its decision.



Mr. David A. Brockman, Manager
U.S. Department of Energy
Richland Operations Office

10/26/07
Date

4