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

06-AMRC-0058

DEC 15 2005

Mr. Michael A. Wilson, Program Manager
Nuclear Waste Program
State of Washington
Department of Ecology
3100 Port of Benton Blvd.
Richland, WA 99354

RECEIVED
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EDMC

Dear Mr. Wilson:

**HANFORD FACILITY RESOURCE CONSERVATION AND RECOVERY ACT (RCRA)
PERMIT APPLICATION TRANSMITTAL FOR THE 331-C STORAGE UNIT**

Attached for the State of Washington Department of Ecology's (Ecology) review and approval is a RCRA permit application document for the 331-C Storage Unit. The U.S. Department of Energy, Richland Operations Office (RL) and the Pacific Northwest National Laboratory (PNNL) are seeking to add 331-C to the Hanford RCRA Permit to relocate PNNL's permitted hazardous waste consolidation and storage operations currently housed at the 305-B Storage Facility. Relocation to 331-C will allow an early transition of 305-B to Washington Closure Hanford (WCH) and facilitation of RL's expedited closure activities currently ongoing in the North 300 Area.

The 331-C permit application documentation is adapted from the existing documentation for 305-B. A summary of significant revisions includes:

- The capacity of the unit is smaller, tailored to existing laboratory waste flows, as well as, the reduced size of the building housing the unit. Mixed waste storage is not anticipated or described, hence no AEA disclaimers and no discussion of radionuclide information are included.
- Facility descriptions in Chapters 2 and 4 are tailored to the 331-C building. Notably, the storage cells utilize angle iron bolted to the floor instead of masonry walls as at 305-B for economy and ease of facility adaptation. Since no mixed waste is expected to be stored, compliance with Subpart CC (air emissions from stored containers) is addressed in Chapter 4.
- Building specific information is updated (e.g. location of phones, fire extinguishers, location of staging area) in Chapters 6-7. A revised loading/unloading area description is included; 305-B is written for backing a semi-trailer into or up to the unit, while 331-C has an adjacent loading ramp with engineered secondary containment. These chapters contain Official Use Only (OUO) information and are provided in Attachment 2.

~~Document transmitted
contains OUO information~~

Mr. Michael A. Wilson
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- A new closure plan based on the clean debris standard (similar in scope and verbiage to the closure plan used at the 616 Non-radioactive Dangerous Waste Storage Facility in 2001) is utilized instead of the 1990-vintage plan currently included in 305-B.
- Chapter 12 (recordkeeping) is proposed to refer to DOE/RL-91-28 Chapter 12, as other Hanford operating units do, instead of a separate recordkeeping system as in current 305-B Chapter 12.

Also, included is the Washington State Environmental Policy Act (SEPA) checklist (Attachment 3) to support Ecology's proposed action.

We look forward to working together to finalize the addition of 331-C as a Class 3 permit modification to the Hanford RCRA Permit and appreciate the support your staff has indicated for the planned modification. If you have questions, please contact me or your staff may contact Kevin Bazzell, of my staff, on (509) 373-0463.

Sincerely,



David T. Evans, Acting Assistant Manager
for the River Corridor

AMRC:KDB

Attachments

1. RCRA Permit Application for the 331-C Storage Unit
2. Chapters 6-7
3. SEPA Checklist

cc w/o attaches:

T. L. Aldridge, PNSO
G. Bohnee, NPT
F. W. Bond, Ecology
G. P. Davis, Ecology
R. D. Enge, PNNL
S. Harris, CTUIR
R. Jim, YN
J. J. Wallace, Ecology

cc w/attaches:

→ Administrative Record (331-C Storage Unit)
Environmental Portal, A3-01

**Hanford Facility RCRA Permit, WA7890008967
Operating Unit 15
331-C Storage Unit
Permit Application**



331-C Storage Unit Permit Application

Contents

Operating Unit 15

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1	Chapter 1.0	Part A
2	1.0 PART A DANGEROUS WASTE PERMIT.....	1.ii



Dangerous Waste Permit Application Part A Form

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

Please refer to instructions for completing this form.

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

<input checked="" type="checkbox"/>	Request modification to a final status permit (commonly called a "Part B" permit)
<input 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)					
Klein						Keith					
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 Pacific Northwest National Laboratory** Co-Operator for 331-C Storage Unit						(509) 376-7395* (509) 376-1187**					
Street or P.O. Box											
P.O. Box 550* P.O. Box 999**											
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)					
Keith A. Klein, 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	4	1	7	1	0	9	9	9	9	9	9
Research & Development in the Physical, Engineering, & Life Sciences						Unclassified Establishments					
C. Third						D. Fourth					

Other Environmental Permits (see instructions)													
A. Permit Type		B. Permit Number										C. Description	
E		A	I	R	0	2	-	1	2	0	2	WAC 246-247, Non radioactive Air, 40 CFR 61, Subpart H, NESHAPS	
E		D	E	9	8	N	W	P	-	0	0	3	WAC 173-400, General Regulations for Air Pollution Sources WAC 173-460, Controls for New Sources of Toxic Air Pollutants

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

Pacific Northwest National Laboratory (PNNL) is one of nine Department of Energy (DOE) multiprogram national laboratories and is managed by DOE's Office of Science (SC). PNNL program areas include fundamental science, environmental technology, computational and information sciences, national security, and energy science and technology along with the programs of the Environmental Molecular Sciences Laboratory.

The 331-C Storage Unit is a dangerous waste storage unit owned and operated by DOE's Richland Operations Office (RL) and co-operated by PNNL. The unit is used for the collection, consolidation, packaging, storage, preparation for transport and disposal of dangerous waste. It is an integral part of PNNL's waste management system.

Dangerous waste is managed in segregated cells, cabinets, and other areas as described in the Part B permit application. The waste stored at the 331-C Storage Unit consists of listed waste, waste from nonspecific sources, characteristic waste, and state-only waste derived from research activities and facility operations.

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	1	20,000	G	001	1							
2							2							
3							3							
4							4							
5							5							
6							6							
7							7							
8							8							
9							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							

IV. 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	1	10,000	K	S	0	1						Includes Debris
	2	D	0	0	2	10,000	K	S	0	1						Includes Debris
	3	D	0	0	3	1000	K	S	0	1						Includes Debris
	4	D	0	0	4	1000	K	S	0	1						Includes Debris
	5	D	0	0	5	1000	K	S	0	1						Includes Debris
	6	D	0	0	6	1000	K	S	0	1						Includes Debris
	7	D	0	0	7	5,000	K	S	0	1						Includes Debris
	8	D	0	0	8	5,000	K	S	0	1						Includes Debris
	9	D	0	0	9	1000	K	S	0	1						Includes Debris
	1 0	D	0	1	0	1000	K	S	0	1						Includes Debris
	1 1	D	0	1	1	1000	K	S	0	1						Includes Debris
	1 2	D	0	1	2	220	K	S	0	1						Includes Debris
	1 3	D	0	1	3	220	K	S	0	1						Includes Debris
	1 4	D	0	1	4	220	K	S	0	1						Includes Debris
	1 5	D	0	1	5	220	K	S	0	1						Includes Debris
	1 6	D	0	1	6	220	K	S	0	1						Includes Debris
	1 7	D	0	1	7	220	K	S	0	1						Includes Debris
	1 8	D	0	1	8	2,000	K	S	0	1						Includes Debris
	1 9	D	0	1	9	2,000	K	S	0	1						Includes Debris
	2 0	D	0	2	0	220	K	S	0	1						Includes Debris
	2 1	D	0	2	1	220	K	S	0	1						Includes Debris
	2 2	D	0	2	2	2,000	K	S	0	1						Includes Debris
	2 3	D	0	2	3	2,000	K	S	0	1						Includes Debris
	2 4	D	0	2	4	2,000	K	S	0	1						Includes Debris
	2 5	D	0	2	5	2,000	K	S	0	1						Includes Debris

EPA/State ID Number	W	A	7	8	9	0	0	0	8	9	6	7
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Continuation of Section XIV. Description of Dangerous Waste

Line Number	A. Dangerous Waste No. (enter code)					B. Estimated Annual Quantity of Waste	C. Unit of Measure (enter code)	D. Process								
	(1) Process Codes (enter)							(2) Process Description [If a code is not entered in D (1)]								
2 6	D	0	2	6	2,000	K	S	0	1							Includes Debris
2 7	D	0	2	7	220	K	S	0	1							Includes Debris
2 8	D	0	2	8	220	K	S	0	1							Includes Debris
2 9	D	0	2	9	220	K	S	0	1							Includes Debris
3 0	D	0	3	0	220	K	S	0	1							Includes Debris
3 1	D	0	3	1	220	K	S	0	1							Includes Debris
3 2	D	0	3	2	220	K	S	0	1							Includes Debris
3 3	D	0	3	3	220	K	S	0	1							Includes Debris
3 4	D	0	3	4	220	K	S	0	1							Includes Debris
3 5	D	0	3	5	2,000	K	S	0	1							Includes Debris
3 6	D	0	3	6	220	K	S	0	1							Includes Debris
3 7	D	0	3	7	2,000	K	S	0	1							Includes Debris
3 8	D	0	3	8	2,000	K	S	0	1							Includes Debris
3 9	D	0	3	9	2,000	K	S	0	1							Includes Debris
4 0	D	0	4	0	2,000	K	S	0	1							Includes Debris
4 1	D	0	4	1	220	K	S	0	1							Includes Debris
4 2	D	0	4	2	220	K	S	0	1							Includes Debris
4 3	D	0	4	3	2,000	K	S	0	1							Includes Debris
4 4	F	0	0	1	2,000	K	S	0	1							Includes Debris
4 5	F	0	0	2	2,000	K	S	0	1							Includes Debris
4 6	F	0	0	3	5,000	K	S	0	1							Includes Debris
4 7	F	0	0	4	1,000	K	S	0	1							Includes Debris
4 8	F	0	0	5	2,000	K	S	0	1							Includes Debris
4 9	F	0	2	7	200	K	S	0	1							Includes Debris
5 0	P	0	0	1	200	K	S	0	1							Includes Debris
5 1	P	0	0	2	200	K	S	0	1							Includes Debris
5 2	P	0	0	3	200	K	S	0	1							Includes Debris
5 3	P	0	0	4	200	K	S	0	1							Includes Debris
5 4	P	0	0	5	200	K	S	0	1							Includes Debris
5 5	P	0	0	6	200	K	S	0	1							Includes Debris
5 6	P	0	0	7	200	K	S	0	1							Includes Debris
5 7	P	0	0	8	200	K	S	0	1							Includes Debris
5 8	P	0	0	9	200	K	S	0	1							Includes Debris
5 9	P	0	1	0	200	K	S	0	1							Includes Debris

EPA/State ID Number	W	A	7	8	9	0	0	0	8	9	6	7
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Continuation of Section XIV. Description of Dangerous Waste

Line Number	A. Dangerous Waste No. (enter code)	B. Estimated Annual Quantity of Waste	C. Unit of Measure (enter code)	D. Process								
				(1) Process Codes (enter)					(2) Process Description [If a code is not entered in D (1)]			
1 6 2	P 1 9 1	200	K	S	0	1						Includes Debris
1 6 3	P 1 9 2	200	K	S	0	1						Includes Debris
1 6 4	P 1 9 4	200	K	S	0	1						Includes Debris
1 6 5	P 1 9 6	200	K	S	0	1						Includes Debris
1 6 6	P 1 9 7	200	K	S	0	1						Includes Debris
1 6 7	P 1 9 8	200	K	S	0	1						Includes Debris
1 6 8	P 1 9 9	200	K	S	0	1						Includes Debris
1 6 9	P 2 0 1	200	K	S	0	1						Includes Debris
1 7 0	P 2 0 2	200	K	S	0	1						Includes Debris
1 7 1	P 2 0 3	200	K	S	0	1						Includes Debris
1 7 2	P 2 0 4	200	K	S	0	1						Includes Debris
1 7 3	P 2 0 5	200	K	S	0	1						Includes Debris
1 7 4	U 0 0 1	200	K	S	0	1						Includes Debris
1 7 5	U 0 0 2	200	K	S	0	1						Includes Debris
1 7 6	U 0 0 3	200	K	S	0	1						Includes Debris
1 7 7	U 0 0 4	200	K	S	0	1						Includes Debris
1 7 8	U 0 0 5	200	K	S	0	1						Includes Debris
1 7 9	U 0 0 6	200	K	S	0	1						Includes Debris
1 8 0	U 0 0 7	200	K	S	0	1						Includes Debris
1 8 1	U 0 0 8	200	K	S	0	1						Includes Debris
1 8 2	U 0 0 9	200	K	S	0	1						Includes Debris
1 8 3	U 0 1 0	200	K	S	0	1						Includes Debris
1 8 4	U 0 1 1	200	K	S	0	1						Includes Debris
1 8 5	U 0 1 2	200	K	S	0	1						Includes Debris
1 8 6	U 0 1 4	200	K	S	0	1						Includes Debris
1 8 7	U 0 1 5	200	K	S	0	1						Includes Debris
1 8 8	U 0 1 6	200	K	S	0	1						Includes Debris
1 8 9	U 0 1 7	200	K	S	0	1						Includes Debris
1 9 0	U 0 1 8	200	K	S	0	1						Includes Debris
1 9 1	U 0 1 9	200	K	S	0	1						Includes Debris
1 9 2	U 0 2 0	200	K	S	0	1						Includes Debris
1 9 3	U 0 2 1	200	K	S	0	1						Includes Debris
1 9 4	U 0 2 2	200	K	S	0	1						Includes Debris
1 9 5	U 0 2 3	200	K	S	0	1						Includes Debris

PA/State ID Number	W	A	7	8	9	0	0	0	8	9	6	7
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Continuation of Section XIV. Description of Dangerous Waste

Line Number	A. Dangerous Waste No. (enter code)						B. Estimated Annual Quantity of Waste	C. Unit of Measure (enter code)	D. Process					
	(1) Process Codes (enter)					(2) Process Description [if a code is not entered in D (1)]								
1 9 6	U	0	2	4		200	K	S	0	1				Includes Debris
1 9 7	U	0	2	5		200	K	S	0	1				Includes Debris
1 9 8	U	0	2	6		200	K	S	0	1				Includes Debris
1 9 9	U	0	2	7		200	K	S	0	1				Includes Debris
2 0 0	U	0	2	8		200	K	S	0	1				Includes Debris
2 0 1	U	0	2	9		200	K	S	0	1				Includes Debris
2 0 2	U	0	3	0		200	K	S	0	1				Includes Debris
2 0 3	U	0	3	1		200	K	S	0	1				Includes Debris
2 0 4	U	0	3	2		200	K	S	0	1				Includes Debris
2 0 5	U	0	3	3		200	K	S	0	1				Includes Debris
2 0 6	U	0	3	4		200	K	S	0	1				Includes Debris
2 0 7	U	0	3	5		200	K	S	0	1				Includes Debris
2 0 8	U	0	3	6		200	K	S	0	1				Includes Debris
2 0 9	U	0	3	7		200	K	S	0	1				Includes Debris
2 1 0	U	0	3	8		200	K	S	0	1				Includes Debris
2 1 1	U	0	3	9		200	K	S	0	1				Includes Debris
2 1 2	U	0	4	1		200	K	S	0	1				Includes Debris
2 1 3	U	0	4	2		200	K	S	0	1				Includes Debris
2 1 4	U	0	4	3		200	K	S	0	1				Includes Debris
2 1 5	U	0	4	4		200	K	S	0	1				Includes Debris
2 1 6	U	0	4	5		200	K	S	0	1				Includes Debris
2 1 7	U	0	4	6		200	K	S	0	1				Includes Debris
2 1 8	U	0	4	7		200	K	S	0	1				Includes Debris
2 1 9	U	0	4	8		200	K	S	0	1				Includes Debris
2 2 0	U	0	4	9		200	K	S	0	1				Includes Debris
2 2 1	U	0	5	0		200	K	S	0	1				Includes Debris
2 2 2	U	0	5	1		200	K	S	0	1				Includes Debris
2 2 3	U	0	5	2		200	K	S	0	1				Includes Debris
2 2 4	U	0	5	3		200	K	S	0	1				Includes Debris
2 2 5	U	0	5	5		200	K	S	0	1				Includes Debris
2 2 6	U	0	5	6		200	K	S	0	1				Includes Debris
2 2 7	U	0	5	7		200	K	S	0	1				Includes Debris
2 2 8	U	0	5	8		200	K	S	0	1				Includes Debris
2 2 9	U	0	5	9		200	K	S	0	1				Includes Debris

EPA/State ID Number	W	A	7	8	9	0	0	0	8	9	6	7
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Continuation of Section XIV. Description of Dangerous Waste

Line Number	A. Dangerous Waste No. (enter code)	B. Estimated Annual Quantity of Waste	C. Unit of Measure (enter code)	D. Process								
				(1) Process Codes (enter)					(2) Process Description [If a code is not entered in D. (1)]			
2 3 0	U 0 6 0	200	K	S	0	1						Includes Debris
2 3 1	U 0 6 1	200	K	S	0	1						Includes Debris
2 3 2	U 0 6 2	200	K	S	0	1						Includes Debris
2 3 3	U 0 6 3	200	K	S	0	1						Includes Debris
2 3 4	U 0 6 4	200	K	S	0	1						Includes Debris
2 3 5	U 0 6 6	200	K	S	0	1						Includes Debris
2 3 6	U 0 6 7	200	K	S	0	1						Includes Debris
2 3 7	U 0 6 8	200	K	S	0	1						Includes Debris
2 3 8	U 0 6 9	200	K	S	0	1						Includes Debris
2 3 9	U 0 7 0	200	K	S	0	1						Includes Debris
2 4 0	U 0 7 1	200	K	S	0	1						Includes Debris
2 4 1	U 0 7 2	200	K	S	0	1						Includes Debris
2 4 2	U 0 7 3	200	K	S	0	1						Includes Debris
2 4 3	U 0 7 4	200	K	S	0	1						Includes Debris
2 4 4	U 0 7 6	200	K	S	0	1						Includes Debris
2 4 5	U 0 7 7	200	K	S	0	1						Includes Debris
2 4 6	U 0 7 8	200	K	S	0	1						Includes Debris
2 4 7	U 0 7 9	200	K	S	0	1						Includes Debris
2 4 8	U 0 8 0	200	K	S	0	1						Includes Debris
2 4 9	U 0 8 1	200	K	S	0	1						Includes Debris
2 5 0	U 0 8 2	200	K	S	0	1						Includes Debris
2 5 1	U 0 8 3	200	K	S	0	1						Includes Debris
2 5 2	U 0 8 4	200	K	S	0	1						Includes Debris
2 5 3	U 0 8 5	200	K	S	0	1						Includes Debris
2 5 4	U 0 8 6	200	K	S	0	1						Includes Debris
2 5 5	U 0 8 7	200	K	S	0	1						Includes Debris
2 5 6	U 0 8 8	200	K	S	0	1						Includes Debris
2 5 7	U 0 8 9	200	K	S	0	1						Includes Debris
2 5 8	U 0 9 0	200	K	S	0	1						Includes Debris
2 5 9	U 0 9 1	200	K	S	0	1						Includes Debris
2 6 0	U 0 9 2	200	K	S	0	1						Includes Debris
2 6 1	U 0 9 3	200	K	S	0	1						Includes Debris
2 6 2	U 0 9 4	200	K	S	0	1						Includes Debris
2 6 3	U 0 9 5	200	K	S	0	1						Includes Debris

PA/State ID Number W A 7 8 9 0 0 0 8 9 6 7

Continuation of Section XIV. Description of Dangerous Waste

Line Number	A. Dangerous Waste No. (enter code)	B. Estimated Annual Quantity of Waste	C. Unit of Measure (enter code)	D. Process	
				(1) Process Codes (enter)	(2) Process Description [If a code is not entered in D (1)]
2 6 4	U 0 9 6	200	K	S 0 1	Storage-Container
2 6 5	U 0 9 7	200	K	S 0 1	Includes Debris
2 6 6	U 0 9 8	200	K	S 0 1	Includes Debris
2 6 7	U 0 9 9	200	K	S 0 1	Includes Debris
2 6 8	U 1 0 1	200	K	S 0 1	Includes Debris
2 6 9	U 1 0 2	200	K	S 0 1	Includes Debris
2 7 0	U 1 0 3	200	K	S 0 1	Includes Debris
2 7 1	U 1 0 5	200	K	S 0 1	Includes Debris
2 7 2	U 1 0 6	200	K	S 0 1	Includes Debris
2 7 3	U 1 0 7	200	K	S 0 1	Includes Debris
2 7 4	U 1 0 8	200	K	S 0 1	Includes Debris
2 7 5	U 1 0 9	200	K	S 0 1	Includes Debris
2 7 6	U 1 1 0	200	K	S 0 1	Includes Debris
2 7 7	U 1 1 1	200	K	S 0 1	Includes Debris
2 7 8	U 1 1 2	200	K	S 0 1	Includes Debris
2 7 9	U 1 1 3	200	K	S 0 1	Includes Debris
2 8 0	U 1 1 4	200	K	S 0 1	Includes Debris
2 8 1	U 1 1 5	200	K	S 0 1	Includes Debris
2 8 2	U 1 1 6	200	K	S 0 1	Includes Debris
2 8 3	U 1 1 7	200	K	S 0 1	Includes Debris
2 8 4	U 1 1 8	200	K	S 0 1	Includes Debris
2 8 5	U 1 1 9	200	K	S 0 1	Includes Debris
2 8 6	U 1 2 0	200	K	S 0 1	Includes Debris
2 8 7	U 1 2 1	200	K	S 0 1	Includes Debris
2 8 8	U 1 2 2	200	K	S 0 1	Includes Debris
2 8 9	U 1 2 3	200	K	S 0 1	Includes Debris
2 9 0	U 1 2 4	200	K	S 0 1	Includes Debris
2 9 1	U 1 2 5	200	K	S 0 1	Includes Debris
2 9 2	U 1 2 6	200	K	S 0 1	Includes Debris
2 9 3	U 1 2 7	200	K	S 0 1	Includes Debris
2 9 4	U 1 2 8	200	K	S 0 1	Includes Debris
2 9 5	U 1 2 9	200	K	S 0 1	Includes Debris
2 9 6	U 1 3 0	200	K	S 0 1	Includes Debris
2 9 7	U 1 3 1	200	K	S 0 1	Includes Debris

EPA/State ID Number	W	A	7	8	9	0	0	0	8	9	6	7
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Continuation of Section XIV. Description of Dangerous Waste

Line Number	A. Dangerous Waste No. (enter code)	B. Estimated Annual Quantity of Waste	C. Unit of Measure (enter code)	D. Process								
				(1) Process Codes (enter)					(2) Process Description [If a code is not entered in D (1)]			
2 9 8	U 1 3 2	200	K	S	0	1						Includes Debris
2 9 9	U 1 3 3	200	K	S	0	1						Includes Debris
3 0 0	U 1 3 4	200	K	S	0	1						Includes Debris
3 0 1	U 1 3 5	200	K	S	0	1						Includes Debris
3 0 2	U 1 3 6	200	K	S	0	1						Includes Debris
3 0 3	U 1 3 7	200	K	S	0	1						Includes Debris
3 0 4	U 1 3 8	200	K	S	0	1						Includes Debris
3 0 5	U 1 4 0	200	K	S	0	1						Includes Debris
3 0 6	U 1 4 1	200	K	S	0	1						Includes Debris
3 0 7	U 1 4 2	200	K	S	0	1						Includes Debris
3 0 8	U 1 4 3	200	K	S	0	1						Includes Debris
3 0 9	U 1 4 4	200	K	S	0	1						Includes Debris
3 1 0	U 1 4 5	200	K	S	0	1						Includes Debris
3 1 1	U 1 4 6	200	K	S	0	1						Includes Debris
3 1 2	U 1 4 7	200	K	S	0	1						Includes Debris
3 1 3	U 1 4 8	200	K	S	0	1						Includes Debris
3 1 4	U 1 4 9	200	K	S	0	1						Includes Debris
3 1 5	U 1 5 0	200	K	S	0	1						Includes Debris
3 1 6	U 1 5 1	200	K	S	0	1						Includes Debris
3 1 7	U 1 5 2	200	K	S	0	1						Includes Debris
3 1 8	U 1 5 3	200	K	S	0	1						Includes Debris
3 1 9	U 1 5 4	200	K	S	0	1						Includes Debris
3 2 0	U 1 5 5	200	K	S	0	1						Includes Debris
3 2 1	U 1 5 6	200	K	S	0	1						Includes Debris
3 2 2	U 1 5 7	200	K	S	0	1						Includes Debris
3 2 3	U 1 5 8	200	K	S	0	1						Includes Debris
3 2 4	U 1 5 9	200	K	S	0	1						Includes Debris
3 2 5	U 1 6 0	200	K	S	0	1						Includes Debris
3 2 6	U 1 6 1	200	K	S	0	1						Includes Debris
3 2 7	U 1 6 2	200	K	S	0	1						Includes Debris
3 2 8	U 1 6 3	200	K	S	0	1						Includes Debris
3 2 9	U 1 6 4	200	K	S	0	1						Includes Debris
3 3 0	U 1 6 5	200	K	S	0	1						Includes Debris
3 3 1	U 1 6 6	200	K	S	0	1						Includes Debris

PA/State ID Number W A 7 8 9 0 0 0 8 9 6 7

Continuation of Section XIV. Description of Dangerous Waste

Line Number	A. Dangerous Waste No. (enter code)	B. Estimated Annual Quantity of Waste	C. Unit of Measure (enter code)	D. Process	
				(1) Process Codes (enter)	(2) Process Description [If a code is not entered in D (1)]
3 3 2	U 1 6 7	200	K	S 0 1	Includes Debris
3 3 3	U 1 6 8	200	K	S 0 1	Includes Debris
3 3 4	U 1 6 9	200	K	S 0 1	Includes Debris
3 3 5	U 1 7 0	200	K	S 0 1	Includes Debris
3 3 6	U 1 7 1	200	K	S 0 1	Includes Debris
3 3 7	U 1 7 2	200	K	S 0 1	Includes Debris
3 3 8	U 1 7 3	200	K	S 0 1	Includes Debris
3 3 9	U 1 7 4	200	K	S 0 1	Includes Debris
3 4 0	U 1 7 6	200	K	S 0 1	Includes Debris
3 4 1	U 1 7 7	200	K	S 0 1	Includes Debris
3 4 2	U 1 7 8	200	K	S 0 1	Includes Debris
3 4 3	U 1 7 9	200	K	S 0 1	Includes Debris
3 4 4	U 1 8 0	200	K	S 0 1	Includes Debris
3 4 5	U 1 8 1	200	K	S 0 1	Includes Debris
3 4 6	U 1 8 2	200	K	S 0 1	Includes Debris
3 4 7	U 1 8 3	200	K	S 0 1	Includes Debris
3 4 8	U 1 8 4	200	K	S 0 1	Includes Debris
3 4 9	U 1 8 5	200	K	S 0 1	Includes Debris
3 5 0	U 1 8 6	200	K	S 0 1	Includes Debris
3 5 1	U 1 8 7	200	K	S 0 1	Includes Debris
3 5 2	U 1 8 8	200	K	S 0 1	Includes Debris
3 5 3	U 1 8 9	200	K	S 0 1	Includes Debris
3 5 4	U 1 9 0	200	K	S 0 1	Includes Debris
3 5 5	U 1 9 1	200	K	S 0 1	Includes Debris
3 5 6	U 1 9 2	200	K	S 0 1	Includes Debris
3 5 7	U 1 9 3	200	K	S 0 1	Includes Debris
3 5 8	U 1 9 4	200	K	S 0 1	Includes Debris
3 5 9	U 1 9 6	200	K	S 0 1	Includes Debris
3 6 0	U 1 9 7	200	K	S 0 1	Includes Debris
3 6 1	U 2 0 0	200	K	S 0 1	Includes Debris
3 6 2	U 2 0 1	200	K	S 0 1	Includes Debris
3 6 3	U 2 0 2	200	K	S 0 1	Includes Debris
3 6 4	U 2 0 3	200	K	S 0 1	Includes Debris
3 6 5	U 2 0 4	200	K	S 0 1	Includes Debris

PA/State ID Number W A 7 8 9 0 0 0 8 9 6 7

Continuation of Section XIV. Description of Dangerous Waste

Line Number	A. Dangerous Waste No. (enter code)			B. Estimated Annual Quantity of Waste	C. Unit of Measure (enter code)	D. Process								
						(1) Process Codes (enter)				(2) Process Description [If a code is not entered in D: (1)]				
4 0 0	U	2	4	9	200	K	S	0	1					Includes Debris
4 0 1	U	2	7	1	200	K	S	0	1					Includes Debris
4 0 2	U	2	7	8	200	K	S	0	1					Includes Debris
4 0 3	U	2	7	9	200	K	S	0	1					Includes Debris
4 0 4	U	2	8	0	200	K	S	0	1					Includes Debris
4 0 5	U	3	2	8	200	K	S	0	1					Includes Debris
4 0 6	U	3	5	3	200	K	S	0	1					Includes Debris
4 0 7	U	3	5	9	200	K	S	0	1					Includes Debris
4 0 8	U	3	6	4	200	K	S	0	1					Includes Debris
4 0 9	U	3	6	7	200	K	S	0	1					Includes Debris
4 1 0	U	3	7	2	200	K	S	0	1					Includes Debris
4 1 1	U	3	7	3	200	K	S	0	1					Includes Debris
4 1 2	U	3	8	7	200	K	S	0	1					Includes Debris
4 1 3	U	3	8	9	200	K	S	0	1					Includes Debris
4 1 4	U	3	9	4	200	K	S	0	1					Includes Debris
4 1 5	U	3	9	5	200	K	S	0	1					Includes Debris
4 1 6	U	4	0	4	200	K	S	0	1					Includes Debris
4 1 7	U	4	0	9	200	K	S	0	1					Includes Debris
4 1 8	U	4	1	0	200	K	S	0	1					Includes Debris
4 1 9	U	4	1	1	200	K	S	0	1					Includes Debris
4 2 0	W	P	C	B	5,000	K	S	0	1					Includes Debris
4 2 1	W	P	0	1	2,000	K	S	0	1					Includes Debris
4 2 2	W	P	0	2	2,000	K	S	0	1					Includes Debris
4 2 3	W	P	0	3	500	K	S	0	1					Includes Debris
4 2 4	W	T	0	1	20,000	K	S	0	1					Includes Debris
4 2 5	W	T	0	2	20,000	K	S	0	1					Includes Debris
4 2 6	W	S	C	2	5,000	K	S	0	1					Includes Debris
4 2 7	K	0	1	3	200	K	S	0	1					Includes Debris
4 2 8	K	0	4	4	200	K	S	0	1					Includes Debris

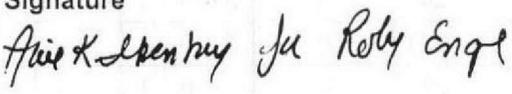
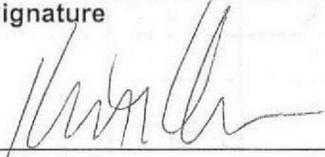
XV. Map
 Attach to this application a topographic map of the area extending to at least one (1) mile beyond property boundaries. The map must show the outline of the facility; the location of each of its existing and proposed intake and discharge structures; each of its dangerous waste treatment, storage, 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

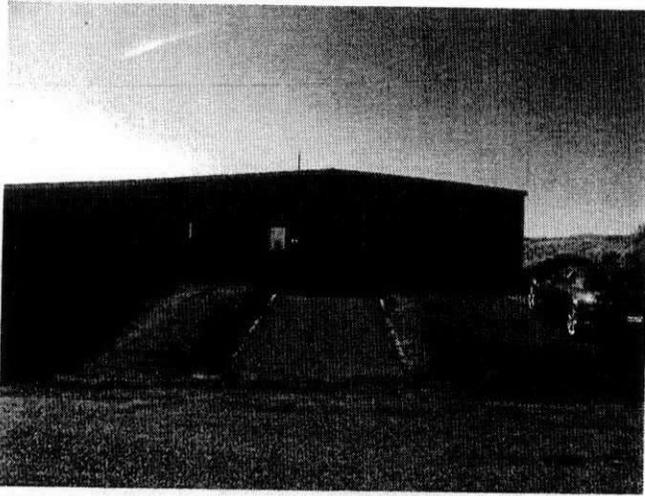
I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage 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.

Operator* Name and Official Title (type or print) Keith A. Klein, Manager U.S. Department of Energy Richland Operations Office	Signature 	Date Signed 12/15/05
Co-Operator** Name and Official Title (type or print) Roby D. Enge, Director Environment, Safety, Health and Quality Pacific Northwest National Laboratory	Signature 	Date Signed 11/30/05
Co-Operator** – Address and Telephone Number 3350 George Washington Way P.O. Box 999 Richland, WA 99352 (509) 376-1187		
Facility-Property Owner* Name and Official Title (type or print) Keith A. Klein, Manager U.S. Department of Energy Richland Operations Office	Signature 	Date Signed 12/15/05

Comments

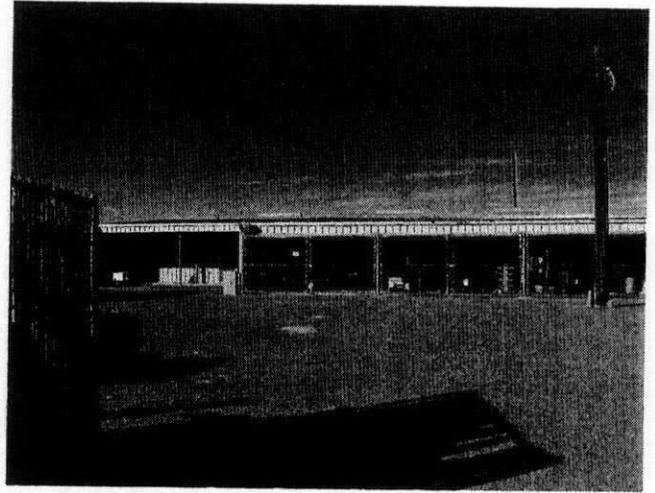
Empty comment box.

331-C Storage Unit



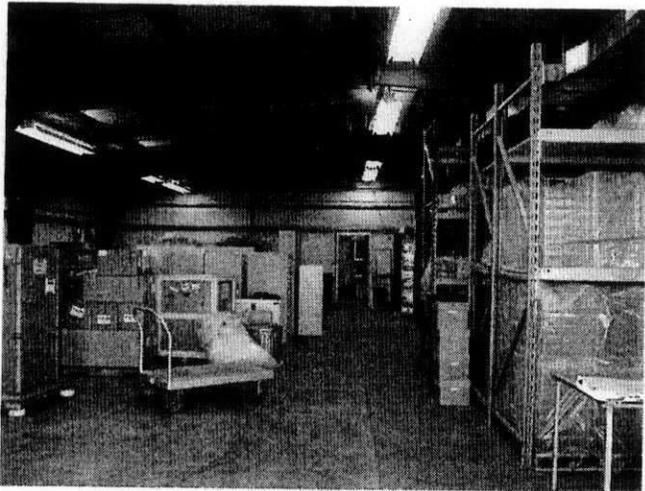
331-C Front

Photo Taken 2005



331-C East Side

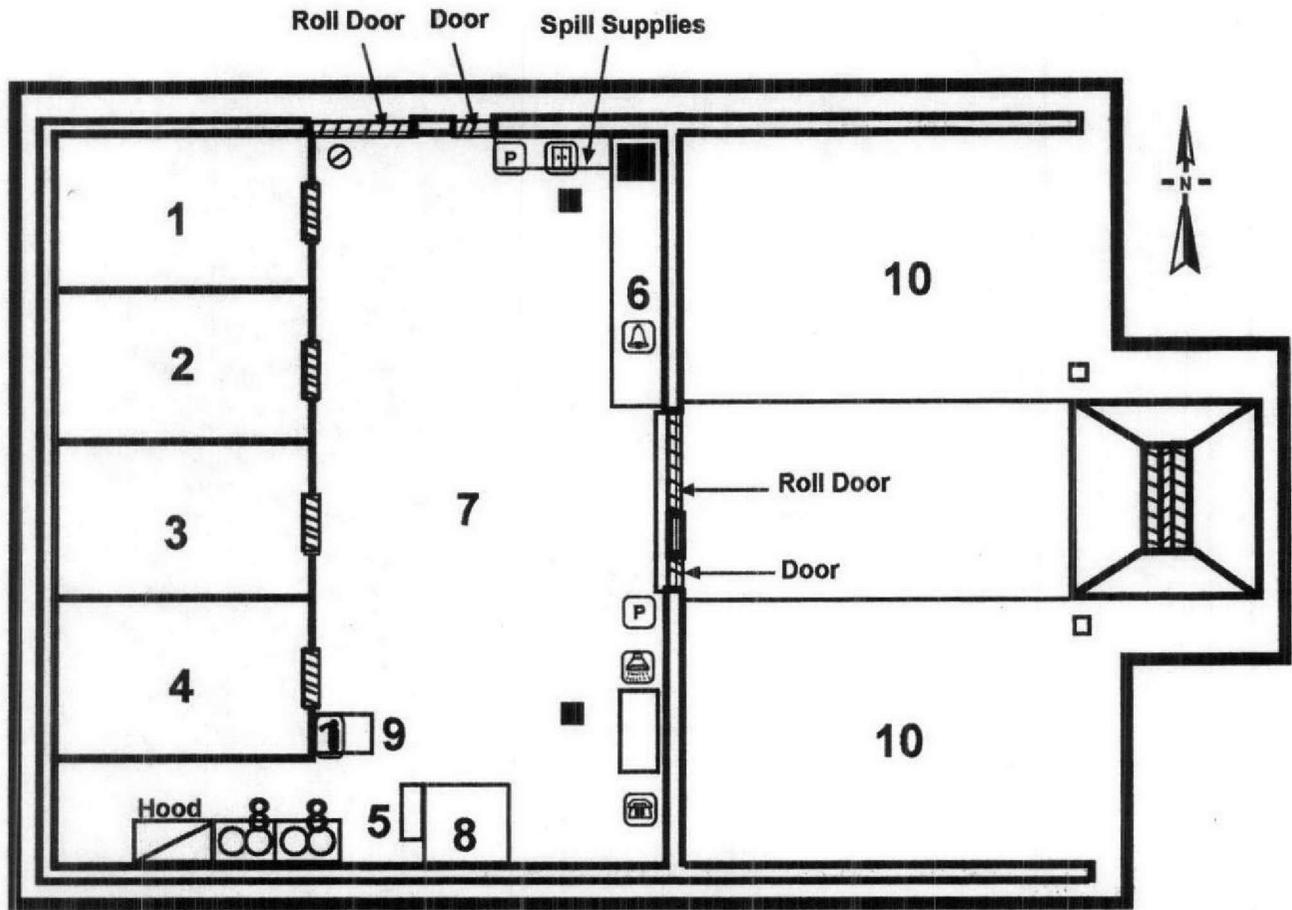
Photo Taken 2005



331-C Inside

Photo Taken 2005

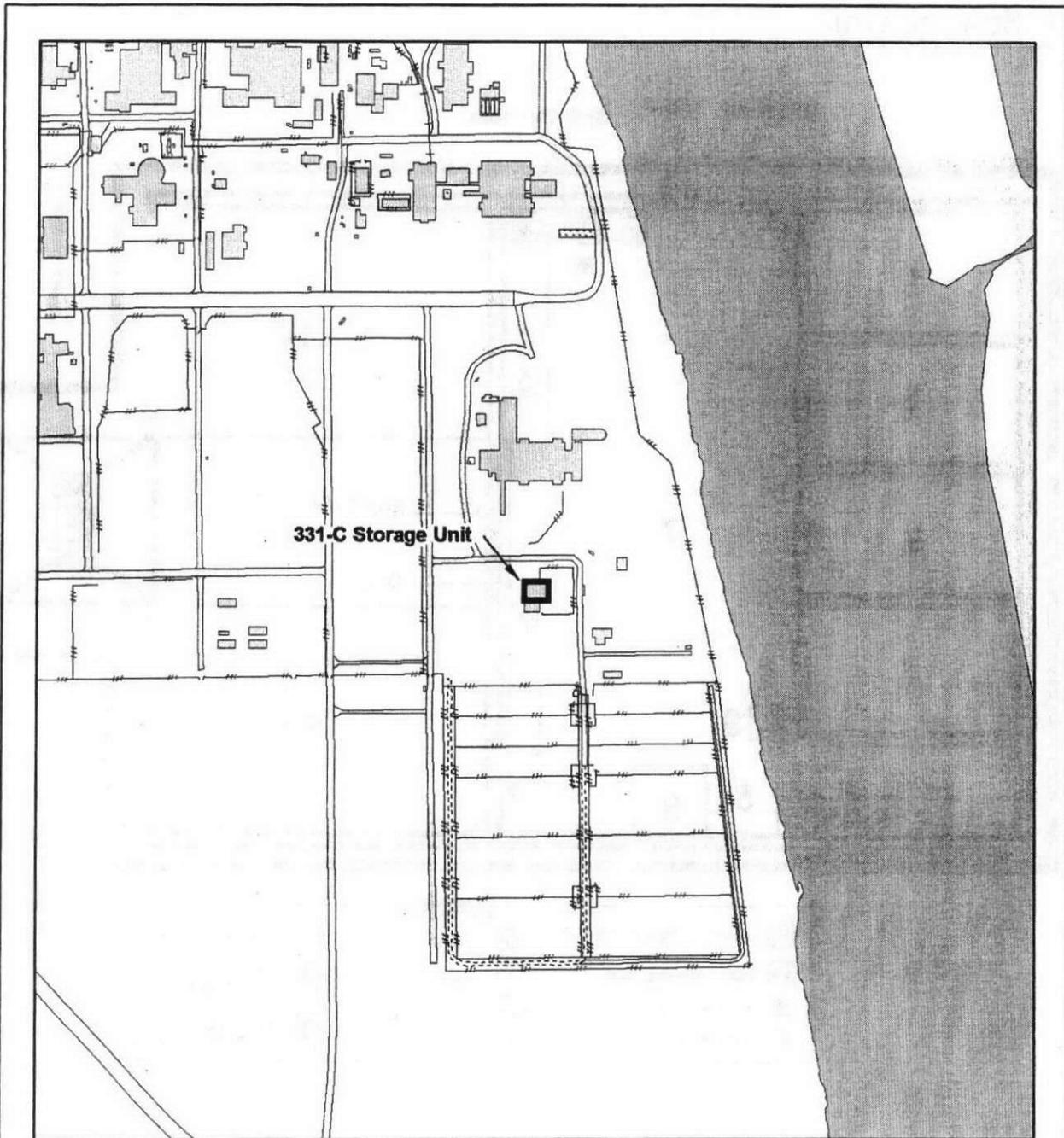
331-C Storage Unit



Legend					
	Emergency Equipment Cabinet		Phone		Fire Alarm Pull Box
	Safety Shower/Eyewash		Fire Alarm Bell		10 Lb. ABC Fire Extinguisher
	Emergency Lights		Collection Sump		15 Lb. Or Larger Class D Fire Extinguisher
	HVAC Shutoff		TSD Boundary		

Legend

1. Acids, Oxidizers
2. Poisons, Class 9
3. Alkaline, WSDW, Organic Peroxides
4. Organics Flammable and Compressed Aerosols
5. Compressed gases
6. Universal/Recycling Storage Area
7. Class 9, WSDW, Non-flammable and Compatible Waste
8. Flammable Storage
9. Explosive Magazine
10. Outdoor Non-regulated Drum Storage



331-C Storage Unit

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 | Structures |
| DOE Operating Areas | Concrete |
| Hanford Facility | Major Roads |
| US Fish & Wildlife Service | Service Roads |
| Columbia River | Railroads |
| Buildings and Mobiles | Fences |



Chapter 2.0

Unit Description and General Provisions

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24			

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2.0 UNIT DESCRIPTION AND GENERAL PROVISIONS

This chapter briefly provides a general overview of the 331-C Storage Unit, including:

- Topography
- Location information
- Performance standards
- Buffer monitoring zones

2.1 331-C STORAGE UNIT

The 331-C Storage Unit is a dangerous waste storage unit owned and operated by DOE and co-operated by PNNL. The unit is used for the collection, consolidation, packaging, storage, and preparation for transport and disposal of dangerous waste. It is an integral part of the Hanford Site's waste management system.

The 331-C Storage Unit is a one-story metal building with fenced exterior areas constructed in the early 1970s. The unit is located within the south portion of the 300 Area, as shown in Chapter 1.0, and was formerly used for equipment storage. Unit upgrades were completed in 2006 to meet requirements for storage of dangerous waste. Waste storage is expected to begin February 2006 contingent on Ecology approval.

Varieties of small volume chemical wastes are generated by PNNL's research laboratory activities under contract to DOE. These wastes are brought to the 331-C Storage Unit and segregated by compatibility for storage in the unit until enough waste is accumulated to fill a labpack or bulking container, usually a 30- to 55-gallon drum. When a sufficient number of shipping containers of waste have accumulated, they are manifested for shipment, generally to permitted off-site recycling, treatment or disposal facilities.

Dangerous wastes are stored in Room 1 the building and in the covered area adjacent to the building. The indoor storage area has been equipped with a secondary containment system to facilitate storage of containerized wastes. In addition, four storage "cells" have been constructed within the bay area for segregated storage of incompatible waste streams. Each of the cells is approximately 12' x 18', enclosed by 6"-high angle iron bolted and sealed to the floor and a grated containment trench at the opening of each cell to prevent any migration of waste spills. Each cell is its own separate secondary containment system. Drum-quantity storage for incompatible wastes is allowed in these cells and has also been provided in separate areas of the building. A detailed description of these areas is given in Chapter 4.0.

The 331-C Storage Unit is equipped with electric heaters and a cooling system with a capacity of 5 tons, to provide relatively constant temperatures during storage of dangerous wastes. These systems are adequate to maintain interior temperatures in the range of 50-85°F during normal ambient temperatures of 10-100°F.

A small, laboratory-style fume hood installed on the south wall in the storage area is used for waste verification, compatibility testing, and small-volume waste work.

A simplified building layout and individual storage cell descriptions are shown in Chapter 4.0.

2.2 TOPOGRAPHIC MAP

Refer to Chapter 1.0 for map information.

1 **2.3 PERFORMANCE STANDARD**

2 The 331-C Storage Unit was designed to minimize the exposure of personnel to dangerous wastes and
3 hazardous substances and to prevent dangerous wastes and hazardous substances from reaching the
4 environment.

5 In addition, measures are taken to confirm that 331-C Storage Unit is maintained and operated, to
6 the maximum extent practicable given the limits of technology, in a manner that prevents:

- 7 • Degradation of groundwater quality
- 8 • Degradation of air quality by open burning or other activities
- 9 • Degradation of surface water quality
- 10 • Destruction or impairment of flora or fauna outside of the unit
- 11 • Excessive noise
- 12 • Negative aesthetic impacts
- 13 • Unstable hillsides or soils
- 14 • Use of processes that do not treat, detoxify, recycle, reclaim, and recover waste material to
15 the extent economically feasible
- 16 • Endangerment to the health of employees or the public near the unit.

17 The measures taken to prevent each of the above negative effects from occurring are described in the
18 following sections.

19 **2.3.1 Measures to Prevent Degradation of Groundwater Quality**

20 Degradation of groundwater quality is prevented by storing waste containers within an enclosed building
21 with a sealed concrete floor. All drains and sumps in areas where wastes are stored are blocked to prevent
22 release of spilled material to the environment. The 331-C Storage Unit accepts only those packages
23 meeting applicable DOT requirements. Opening of containers is done only in areas with spill
24 containment. Design and administrative controls significantly reduce the possibility of release of
25 dangerous waste to the environment through soil or groundwater contamination.

26 **2.3.2 Measures to Prevent Degradation of Air Quality by Open Burning or Other Activities**

27 No open burning occurs at the 331-C Storage Unit. There is no vegetation around the 331-C Storage
28 Unit, and the area around the unit is paved or graveled, thereby reducing the risk of fire or wind erosion.
29 Combustible and flammable waste is packaged in a manner that reduces the potential for fire.

30 **2.3.3 Measures to Prevent Degradation of Surface Water Quality**

31 The potential for degradation of surface water quality is extremely low, due to the manner in which the
32 Unit is designed and operated. All waste handling activities (i.e., loading/unloading, container opening,
33 waste transfer) presenting the opportunity for spills are conducted inside the unit. All exits from storage
34 areas of the 331-C Storage Unit are equipped with spill collection sumps to prevent spilled material from
35 escaping.

36 **2.3.4 Measures to Prevent Destruction or Impairment of Flora or Fauna Outside of the Unit**

37 The 331-C Storage Unit is located in the southern portion the 300 Area. The 300 Area is highly
38 developed, and areas not occupied by buildings are generally paved or graveled. As a result, flora or

1 fauna are generally absent within the 300 Area except for several grassed areas. Measures to prevent
2 destruction or impairment of flora or fauna outside the 300 Area are the same as those to prevent releases
3 from the unit (i.e., all waste handling is performed within an enclosed area having spill collection sumps).

4 **2.3.5 Measures to Prevent Excessive Noise**

5 During normal operations at the 331-C Storage Unit, excessive noise is not generated. The major sources
6 of noise are waste transport and handling equipment (e.g., forklifts, light vehicles). The noise generated
7 at the 331-C Storage Unit is compatible with the types of activities generated at neighboring facilities in
8 the 300 Area.

9 **2.3.6 Measures to Prevent Negative Aesthetic Impacts**

10 The 331-C Storage Unit does not injure or destroy the surrounding flora and fauna. The Unit stores waste
11 in approved containers within the confines of the structure. The building's appearance is similar to
12 neighboring facilities. For these reasons, the unit presents no negative aesthetic impacts.

13 **2.3.7 Measures to Prevent Unstable Hillside or Soils**

14 There are no naturally unstable hillsides near the 331-C Storage Unit. The soil beneath and around the
15 unit was compacted prior to construction.

16 **2.3.8 Measures to Prevent the Use of Processes That Do Not Treat, Detoxify, Recycle, Reclaim, 17 and Recover Waste Material to the Extent Economically Feasible**

18 The 331-C Storage Unit was established, in part, to enhance DOE's and PNNL's efforts to eliminate or
19 minimize dangerous waste generation, and to treat, detoxify, recycle, reclaim, and recover waste
20 materials.

21 Offsite waste management options for dangerous wastes being shipped from the 331-C Storage Unit are
22 evaluated according to the following order of preference:

- 23 1. Recycling, including solvent reprocessing, oil recycling, metals recovery, burning for energy
24 recovery, etc.
- 25 2. Treatment, including incineration, volume and/or toxicity reduction, chemical destruction, etc.
- 26 3. Land disposal is viewed as the least favored option and is generally only used for treatment residues,
27 spill cleanup residues, or when treatment is not feasible.

28 When permitted by law and/or contractual obligations, the 331-C Storage Unit staff tries to use this
29 hierarchy without regard to minor variations in cost, e.g., if recycling is available but slightly more
30 expensive than land disposal, recycling is utilized.

31 **2.3.9 Measures to Prevent Endangerment to the Health of Employees or the Public Near the Unit**

32 The 331-C Storage Unit is within the southern portion of the 300 Area, which is located approximately
33 1 mile north of the corporate limits of the City of Richland. Public entry to the 300 Area is not allowed;
34 members of the public, therefore, cannot enter the 331-C Storage Unit. Exposure of members of the
35 public or employees to dangerous and mixed waste constituents is prevented through administrative
36 controls over the designation, packaging, loading, transporting, and storing of the wastes received at the
37 331-C Storage Unit. In addition, physical controls exist (e.g., spill collection sumps) to prevent release of
38 wastes or waste constituents in the event of a spill.

1 Employees are trained to handle and store waste packages (Chapter 8.0). The training includes dangerous
2 waste awareness, emergency response, and workplace safety. Protective equipment, safety data, and
3 hazardous materials information are supplied by operations management and are readily available for
4 employee use.

5 A contingency plan, including emergency response procedures, is in place and is implemented for spill
6 prevention, containment, and countermeasures to reduce safety and health hazards to employees, the
7 environment, and the public. The contingency plan is described in Chapter 7.0.

8 **2.4 BUFFER MONITORING ZONES**

9 Buffer and monitoring zones around the 331-C Storage Unit are described in the following sections.

10 **2.4.1 Ignitable or Reactive Waste Buffer Zone**

11 Ignitable and reactive wastes are stored in the 331-C Storage Unit in compliance with the requirements of
12 the 1988 Uniform Fire Code, Article 79, Division II (International Conference of Building
13 Officials 1991). Quantity limits for storage are established to comply with requirements for Class B
14 occupancy. Structures surrounding the 331-C Storage Unit are laboratory and office buildings, which are
15 occupied during normal working hours. The nearest adjacent facility is the 331 Building, which is
16 approximately 350 ft north of the 331-C Storage Unit. The closest 300 Area boundary is to the east fence,
17 which is approximately 450 ft east of the 331-C Storage Unit.

18 **2.4.2 Reactive Waste Buffer Zone**

19 Storage of certain reactive wastes listed in WAC 173-303-630(8)(a) occurs at the 331-C Storage Unit.
20 These wastes have special storage requirements more stringent than those shown in Section 2.4.1. They
21 are stored in accordance with this section and with the Uniform Building Code's Table 77.201, latest
22 edition. The 1988 edition requires buffer zones in Class B occupancies of 44 inches for storage of such
23 wastes, and the storage locations in the 331-C Storage Unit reflecting appropriate buffer zones are noted
24 in Chapter 4.0. These wastes are only occasionally stored at the unit, depending on generation by
25 individual research projects.

26 The occupancy storage limitations imposed by UBC for Class B occupancy are as follows:

- 27 • Explosives: 1 lb
- 28 • Organic Peroxide, unclassified, detonatable: 1 lb
- 29 • Pyrophoric: 4 lbs
- 30 • Unstable (reactive), Class 4: 1 lb.

31 These limits are allowed to be doubled when stored in flammable storage cabinets, as is done at the
32 331-C Storage Unit; hence, the practical storage limits at the 331-C Storage Unit are double those shown
33 here.

Chapter 3.0

Waste Analysis

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3.0 WASTE ANALYSIS

2 The purpose of this Waste Analysis Plan (WAP) is to document the waste acceptance process, sampling
3 methodologies, analytical techniques, and processes that are undertaken for sampling and analysis of
4 dangerous waste managed in the 331-C Storage Unit.

5 This chapter also provides information on the chemical, biological, and physical characteristics of the
6 waste stored at the 331-C Storage Unit.

7 3.1 CHEMICAL, BIOLOGICAL, AND PHYSICAL ANALYSIS

8 The dangerous waste stored at the 331-C Storage Unit can be categorized as originating from four basic
9 sources:

- 10 • Listed Waste from specific and nonspecific sources
- 11 • Discarded commercial chemical products
- 12 • Waste from chemicals synthesized or created in research laboratories
- 13 • Discarded commercial products exhibiting dangerous waste characteristics and/or criteria.

14 Each of these waste categories is discussed below, including waste descriptions, hazard characteristics,
15 and bases for hazard designations. This information includes that which must be known to treat, store, or
16 dispose of the waste, as required under WAC 173-303-806(4)(a)(ii).

17 Listed Waste from Specific and Nonspecific Sources. Wastes from specific and nonspecific sources
18 consist of those listed wastes identified in WAC 173-303-9904. Chapter 1.0 identifies the waste from this
19 category with their estimated annual management quantities.

20 Halogenated and nonhalogenated solvents are in the form of spent solvents. Degreasing solvents (F001),
21 as well as spent halogenated solvents (F002), are used primarily in research, although some commercial
22 applications do exist (e.g., printing, duplicating). Spent non-halogenated solvents (F003, F004, and F005)
23 also come primarily from research laboratories, although some is generated through maintenance
24 applications. Manufacturing activities are not performed at Hanford; therefore, dangerous waste from
25 specific sources (WAC 173-303-9904 "K" Waste) typically is not generated at PNNL. However, small
26 quantities of K-listed waste have been generated from treatability studies and sample characterization
27 activities at PNNL from time to time and could be stored at the 331-C Storage Unit. WPCB state source
28 waste (PCB electrical equipment waste) has been generated in limited amounts in the past and could be
29 stored at the 331-C Storage Unit if future generation activities occur.

30 F-listed waste is designated based on process knowledge (e.g., information from container labels or
31 material safety data sheets, process information). Sampling may be performed if the generating unit does
32 not have sufficient information to document the composition and characteristics of the waste. The waste
33 generator is responsible for specifying the characteristics of the waste based on knowledge of the
34 chemical products used (i.e., information supplied by the manufacturer) and the process generating the
35 waste. These listed wastes are all designated as based on the criteria given in WAC 173-303-070. These
36 wastes are also subject to LDR regulations under 40 CFR 268, including disposal prohibitions and
37 treatment standards.

38 Discarded Chemical Products. Discarded chemical products consist of those products described in
39 WAC 173-303-081. Chapter 1.0, of the 331-C Storage Unit application, identifies all of the discarded
40 chemical products listed in WAC 173-303-9903 and specifies an estimated maximum annual management
41 quantity, based on prior experience. Chapter 1.0 lists all of these waste codes, however, because the wide
42 variety of research activities conducted at Hanford presents the potential to generate any of these wastes.

1 These wastes (P waste and U waste) are typically received at the 331-C Storage Unit in the
2 manufacturer's original container. These containers typically consist of glass and polyethylene jars or
3 bottles and metal cans that have a volume equal to or less than 4 liters.

4 Wastes in this category are designated based on the generator's knowledge. As these waste are usually in
5 original containers, information on the container label is verified by generator knowledge (i.e., knowledge
6 that material is in its original container) and is used to identify contents. Waste in "as procured"
7 containers (i.e., original container with intact label) are not sampled. These listed wastes contain those
8 designated as DW as well as those designated as EHW. These wastes are also subject to LDR regulations
9 under 40 CFR 268, including disposal prohibitions and treatment standards.

10 Waste from Chemicals Synthesized or Created in Research Laboratories. Waste from chemicals
11 synthesized or created in research laboratories typically consist of organics in quantities of 100 g or less,
12 received in small containers.

13 These wastes are designated based on the generator's knowledge or based on sampling and analysis. The
14 generator's knowledge is used if the generating unit has kept accurate records of the identities and
15 concentrations of constituents present in the waste (e.g., log sheets for accumulation containers). If
16 information available from the generating unit is inadequate for waste designation, the waste is sampled,
17 and the results of the analysis are used for designation. These wastes include those designated as state
18 only dangerous waste under WAC 173-303-100 and those designated as characteristic dangerous waste
19 under WAC 173-303-090. Chapter 1.0, of the 331-C Storage Unit application, includes all categories of
20 toxic and persistent waste (i.e., both DW and EHW). The wide variety of research activities conducted at
21 Hanford presents the potential that these wastes could be generated and requires subsequent management
22 at the 331-C Storage Unit.

23 The wastes in this category include those designated as either DW or EHW. These wastes could also be
24 federal LDR wastes regulated under 40 CFR 268 as well as state LDR wastes regulated under
25 WAC 173-303-140 (e.g., organic/carbonaceous wastes).

26 Discarded Chemical Products Exhibiting Dangerous Waste Characteristics and/or Criteria. Many
27 discarded chemical products handled in the 331-C Storage Unit are not listed in WAC 173-303-9903 but
28 are still designated as dangerous waste since they exhibit at least one dangerous waste characteristic
29 and/or criterion (described in WAC 173-303-090 and WAC 173-303-100). These wastes are included
30 with those listed in Chapter 1.0, under waste codes D001 through D043, WT01, WT02, WP01, WP02,
31 and WP03.

32 Waste in this category is designated based on the generator's knowledge. As these wastes are usually in
33 their original containers, information on the container label is verified by the generator's knowledge and
34 is used to identify the contents. These wastes contain those designated as DW as well as those designated
35 as EHW. These wastes could also be federal LDR waste regulated under 40 CFR 268 as well as state
36 LDR waste regulated under WAC 173-303-140 (e.g., organic/carbonaceous waste).

37 The container storage areas at the 331-C Storage Unit meet the containment system requirements of
38 WAC 173-303-630(7)(c). No dangerous waste will be stored in areas without secondary containment.

39 **3.1.1 Waste in Piles**

40 This section does not apply to the 331-C Storage Unit because these wastes are not stored in piles.

41 **3.1.2 Landfilled Wastes**

42 This section does not apply to the 331-C Storage Unit because these wastes are not placed in landfills.

43 **3.1.3 Waste Incinerated and Waste Used in Performance Tests**

44 This section does not apply to the 331-C Storage Unit because these wastes are not incinerated.

3.2 WASTE ANALYSIS PLAN

This section describes the processes used to obtain the information necessary to manage waste in accordance with the requirements of WAC 173-303.

3.2.1 Facility Description

The 331-C Storage Unit is a dangerous waste storage unit owned and operated by DOE and co-operated by PNNL. The unit is used for the collection, consolidation, packaging, storage, and preparation for transport and disposal of dangerous waste. It is an integral part of the Hanford Site's waste management system.

The 331-C Storage Unit is a one-story metal building with an adjacent covered area constructed in the early 1970s. The unit is located in the southern portion of the 300 Area, as shown in Chapter 1.0, and was formerly used for equipment storage. Unit upgrades were completed in 2006 to meet requirements for storage of dangerous waste. Waste storage under temporary authorization is expected to begin in February 2006 contingent on Ecology approval.

3.2.2 Description of Facility Processes and Activities

Varieties of small volume chemical wastes are generated by PNNL's research laboratory activities. These wastes are brought to the 331-C Storage Unit and segregated by compatibility for storage in the unit until enough waste is accumulated to fill a labpack or bulking container, usually a 30-55-gallon drum. When a sufficient number of shipping containers of waste have accumulated, they are manifested for shipment, generally to permitted off-site recycling, treatment or disposal facilities.

Dangerous wastes are stored in Room 1 of the building and in the covered area adjacent to the building. The indoor storage area has been equipped with a secondary containment system to facilitate storage of containerized wastes. In addition, four storage "cells" have been constructed within the bay area for segregated storage of incompatible waste streams. Each of the cells is approximately 10' x 15', enclosed by 6 inch high angle iron bolted and sealed to the floor and a grated containment trench at the opening of each cell to prevent any migration of waste spills. Each cell is its own separate secondary containment system. Drum-quantity storage for incompatible wastes is allowed in these cells and in separate areas of the building. A detailed description of these areas is given in Chapter 4.0.

Knowledge from the generator is generally sufficient to meet the requirements for a "detailed chemical, physical, and/or biological analysis" of wastes accepted at the 331-C Storage Unit for the following reasons:

- Wastes stored at the 331-C Storage Unit are generated on the Hanford Site and/or by PNNL research programs maintain effective administrative control over individual waste generating units (i.e., the same organization generates the waste and operates the storage unit).
- Wastes stored at the 331-C Storage Unit may be discarded chemical products for which knowledge of waste characteristics is available without further analysis.
- Most of the waste stored at the 331-C Storage Unit is a result from research activities that are carefully controlled and documented; this documentation includes information on chemical constituents.
- To confirm the sufficiency and reliability of the knowledge provided by generators, onsite visits of the generating unit's areas are performed to familiarize waste management staff with the generator's processes. Data provided by the operations generating the waste are reviewed to identify any special requirements for safe management of the waste. Other methods for confirmation noted in WAC 173-303-300(2)(a) may be used instead of or in conjunction with onsite visits and data review in conjunction with onsite visits and data review in special situations.

1 Because of the importance of administrative controls for the purposes of waste analysis, processes for
2 management of wastes from the time of generation through storage at the 331-C Storage Unit are
3 described below. These processes demonstrate how sufficient knowledge is obtained to manage properly
4 dangerous waste at the 331-C Storage Unit. In the event that such knowledge is not available, the
5 331-C Storage Unit requires sampling and analysis prior to shipment to the storage unit.

6 The 331-C Storage Unit personnel shall collect from the generator the information pursuant to
7 40 CFR 268.7(a) regarding LDR wastes, the appropriate treatment standards, whether the waste meets the
8 treatment standards, and the certification that the waste meets the treatment standards, if necessary, as
9 well as any waste analysis data that supports the generator's determinations. If this information is not
10 supplied by the generator, then the 331-C Storage Unit personnel shall be responsible for completion and
11 transmittal of all subsequent information regarding LDR wastes, pursuant to 40 CFR 268.7(b). All waste
12 streams must be reevaluated when the generator and/or the 331-C Storage Unit personnel have reason to
13 believe the waste stream has changed to determine compliance with LDR requirements in 40 CFR 268.

14 Volumetric Description of Waste. A wide range of waste volumes is collected from research and support
15 activities. Typically, the largest unit container collected is a DOT container <0.46 m³, while the smallest
16 is a trace amount in a small vial.

17 Large volume containers (greater than 4 L) commonly contain chemicals, such as those listed in
18 WAC 173-303-9903 and -9904 and in 40 CFR 261.33, or commercial products, which exhibit one or
19 more of the dangerous waste characteristics or criteria. Most of the containers generally contain
20 chemicals for which information is easily accessible to determine dangerous designation. This
21 information is generally obtained from the container label, for those wastes in original containers, or from
22 the material safety data sheet (MSDS) for the product.

23 Notification for Storing of Waste: The waste analysis process begins when the waste management
24 organization is notified of the presence of a chemical waste. The generating unit completes and transmits
25 an electronic disposal request to accomplish this notification. The form describes the volume and
26 chemical composition of waste in each waste container for disposal. Hazard and compatibility
27 information is obtained for each item on the disposal request form to verify the safety of the waste
28 management organization staff that collect and transport the waste and to verify safe and appropriate
29 storage in the 331-C Storage Unit.

30 The compatibility and hazard class are determined using reference material that may include Condensed
31 Chemical Dictionary, Merck Index, 49 CFR, NIOSH, Sigma-Aldrich, or any other creditable reference
32 material that is applicable. The priority of hazard designation for those substances with multiple hazards
33 or for mixtures is the same used by the DOT in 49 CFR 173.2.a.

34 Disposal Requests and other information used for determining waste designations and compatibility must
35 meet four distinct needs of the dangerous waste manager and sample collector. They must enable each to:

- 36 • Identify those wastes that are designated dangerous in accordance with WAC 173-303 and whether
37 those wastes are DW or EHW
- 38 • Determine whether the waste is restricted from land disposal under 40 CFR 268 or
39 WAC 173-303-140 and whether it complies with applicable treatment standards under 40 CFR 268 or
40 WAC 173-303-140
- 41 • Identify and verify specific morphological characteristics of waste in solid or solution form
- 42 • Outline how to safely handle, transport, analyze, store, and dispose of the waste product or sample.

43 Physical Analysis. Visual validation as a physical analysis activity is strongly relied upon to confirm the
44 nature of a waste collected or sampled, and to determine the accuracy of the disposal request information
45 received from the generating unit. It is impractical for the waste management organization to analyze
46 chemically each container or vial of waste accepted for storage in the 331-C Storage Unit since the
47 amount handled can exceed 10,000 containers per year. A more realistic approach to reducing risks to

1 safety and the environment, and one implemented at the 331-C Storage Unit, includes trained and
2 experienced personnel performing a visual inspection of the waste and direct inquiry of the generator.
3 The waste is inspected to verify that it matches the description on the disposal request. If the waste is a
4 discarded product, the contents of the container are inspected to verify that they match the description of
5 the product. For other waste, e.g., spent solvents, waste descriptions are compared with the products in
6 use at the generating unit. Generators are queried concerning the source of the waste and the materials
7 used in the process generating the waste. This information is compared to the description of the waste on
8 the disposal request. If, after visual inspection of the waste and interrogation of the generating unit
9 personnel, any doubt remains as to the identity of the waste, the waste is sampled and analyzed by the
10 generator.

11 Waste Collection at the Generating Unit. When satisfactory information has been obtained from the
12 Disposal Request Form, waste management organization staff visits the generator storage area and makes
13 a final inspection of the waste containers to determine whether the disposal request form and contents
14 label information match completely. If the information on the disposal request matches with the container
15 labeling and visual inspection, the waste is approved for storage. If discrepancies are found, the generator
16 is required to resubmit the disposal request with accurate information. Unknown or unidentified materials
17 are sampled for identification of constituents and remain in the 90-day accumulation area until the
18 composition has been determined.

19 Labeling and Marking. After inspection of the waste at the generating unit, the approved waste is
20 assigned a unique identification number, cell location, and hazard classification. Waste meeting
21 Washington dangerous waste criteria under 173-303-100 are marked "Toxic" (for waste designated WT01
22 or WT02), and/or "Persistent" (for waste designated WP01, WP02, or WP03), in accordance with
23 WAC 173-303-630(3). In addition, each waste container is labeled with a list of constituents and major
24 risk(s). This computerized information helps the waste handlers verify safe handling, storage, retrieval,
and transportation of dangerous waste.

26 Transportation. The labeled containers are transported to the 331-C Storage Unit by PNNL staff trained
27 in applicable DOT requirements and emergency response. Waste is transported using a truck or light
28 utility vehicle. For transport on roads accessible to the public, the vehicles are placarded in compliance
29 with DOT regulations and documented in compliance with WAC 173-303-180, and Hanford Facility
30 RCRA Permit Conditions II.P and/or II.Q as applicable.

31 Waste Handling, Storage, and Tracking at the 331-C Storage Unit. Waste received at the 331-C Storage
32 Unit is put into 10 separate hazard classifications based on building and fire code restrictions for that type
33 of facility:

- 34 1. Acids, Oxidizers
- 35 2. Poisons, Class 9
- 36 3. Alkaline, WSDW, Organic Peroxides
- 37 4. Organics, Flammables, and compressed Aerosols
- 38 5. Compressed gases
- 39 6. Universal/Recycling
- 40 7. Class 9, WSDW, Non-flammable and compatible waste
- 41 8. Flammable
- 42 9. Explosive Magazine
- 43 10. Outdoor, Non-regulated

44 Each hazard class has designated and clearly identified locations within the 331-C Storage Unit.
45 Containers of dangerous wastes (10 gallons or less) are stored in a specific storage cabinet or shelf
46 designed for that hazard class. The cabinets are located inside the appropriate storage cell (i.e., acid
storage cabinet in acid cell). DOT-approved containers (typically 10 gallons and larger but less than
0.46 m³) are segregated by hazard class and can be stored in an appropriate storage cell or on the main
bay floor in the 331-C Storage Unit.

1 Storage limits for all chemicals are listed in Table 4-2. This table is incorporated into this section by
2 reference.

3 Recordkeeping and Inventory Control. A computer tracking system has been developed to verify that
4 complete records of current inventory, packaging, and shipping data are maintained. Records of the
5 initial waste disposal request, waste analysis result (if required), waste designation, and shipping
6 manifests are maintained. As wastes are received for disposal, the containers are labeled with the
7 information described in the Labeling and Marking section above, including a unique computer
8 identification number.

9 The endpoint of the process for most waste is proper packaging and transport of the waste to an approved
10 recycler or treatment/disposal facility. Some commercial chemical products, however, are redistributed to
11 other users. Final computer verification of the history and ultimate disposal of each waste container is
12 entered when the material is shipped from the 331-C Storage Unit.

13 Current waste quantities in inventory are periodically verified and reported to the Unit Operations
14 Supervisor. The inventory is checked by hazard class, which also provides a measure of current inventory
15 versus established limits.

16 If it is determined that the 331-C Storage Unit inventory is within 5 percent of the limit for a given hazard
17 classification, additional waste of that hazard class is not accepted into the 331-C Storage Unit until the
18 inventory has been reduced. The unit-operating supervisor must approve exceptions.

19 Unknown Waste and Waste Constituent Verification. Containers with unknown waste compositions are
20 not accepted at the 331-C Storage Unit. In the event that the 331-C Storage Unit staff is required to
21 respond to a critical need of a generating unit in the future and pick up an unknown waste, it will be
22 sampled and analyzed at the unit.

23 If, for any reason, 331-C Storage Unit personnel believe that more stringent analysis of non-reagent grade
24 chemical waste is needed (e.g., mixtures), they will request that the generator have the waste analyzed by
25 an approved analytical laboratory. Reasons for this request may be the questionable appearance of the
26 waste, periodic confirmation of waste composition, or historically unreliable information from a particular
27 generator. There is no established frequency for this sampling and analysis; it is conducted on an as-
28 needed basis. This analysis must follow test procedures given in WAC-173-303-110(3). Analytical
29 laboratories in the area with these capabilities include commercial, Hanford Site, and Battelle-operated
30 laboratories. The generator must also provide the laboratory analysis confirming the waste composition
31 when the waste management organization picks up the waste. This analysis will become part of the
32 331-C Storage Unit Operating Record.

33 **3.2.3 Identification/EPA Classification and Quantities of Hazardous Wastes Managed within the** 34 **331-C Storage Unit**

35 Refer to Section 3.1 for a description of the types and quantities of wastes managed at the 331-C Storage
36 Unit.

37 **3.2.4 Description of Hazardous Waste Management Units**

38 The 331-C Storage Unit Waste Management Units are described in Chapter 4.0.

39 **3.3 SELECTING WASTE ANALYSIS PARAMETERS**

40 State and federal regulations [WAC 173-303-300(2) and (5)(a); WAC 173-303-140; 40 CFR 268.7(a)]
41 require that information be obtained, documented, and/or reported on wastes received by a TSD unit.
42 These requirements include verifying that only waste that meets 331-C Storage Unit unit-specific Permit
43 requirements are accepted, and reporting the information required by WAC 173-303-380. In addition to
44 providing a general description of the waste, the focus of the information collected for regulatory
45 purposes is to verify that the 331-C Storage Unit is permitted to accept and store the waste.

1 The 331-C Storage Unit only accepts wastes that have been characterized properly. Before receipt or
2 acceptance of waste at the 331-C Storage Unit, generators must supply adequate information to
3 characterize and manage wastes properly.

4 One of the most important aspects of operating the 331-C Storage Unit in a safe manner is to prevent the
5 mixing of incompatible wastes. For the purposes of this document, waste is considered compatible if,
6 when mixed, waste does not (1) generate extreme heat or pressure, fire, or explosion, or violent reaction;
7 (2) produce uncontrolled toxic mists, dusts, or gases in sufficient quantities to threaten human health; (3)
8 produce uncontrolled flammable fumes or gases in sufficient quantities to pose a risk of fire or
9 explosions; (4) damage the structural integrity of the device or facility containing the waste; or
10 (5) through other like means threaten human health or the environment.

11 Sampling and laboratory analysis could be required to verify or establish waste characteristics for waste
12 that is stored at the 331-C Storage Unit. The following are instances where sampling and laboratory
13 analysis is required:

- 14 • inadequate information on PNNL-generated waste
- 15 • 5 percent waste verification for PNNL-generated waste
- 16 • 10 percent waste verification for non-PNNL-generated waste
- 17 • identification and characterization for unknown waste and spills within the unit

18 3.3.1 Parameter Selection Process

19 The selection of analytical parameters is based on the State of Washington's *Dangerous Waste*
20 *Regulations*, WAC 173-303-300 and *EPA Waste Analysis at Facilities That Generate, Treat, Store, and*
21 *Dispose of Hazardous Wastes, A Guidance Manual* (EPA 1994).

22 At least five percent of the waste containers received at 331-C during a federal fiscal year (October 1
23 through September 30) will undergo confirmation of designation pursuant to Sections 3.2.2 and 3.2.3.
24 The number of containers needed to meet the five percent requirement is five percent of the average of
25 containers for the previous three months. For example if 200 containers are received in January, 180 in
26 February, and 220 in March, then 10 containers of received waste must undergo confirmation of
27 designation in April. All non-PNNL generating units, which ship more than 20 containers through
28 331-C Storage Unit in a fiscal year, will have at least one container sampled and analyzed. Containers,
29 for which there is insufficient process knowledge, or analytical information to designate without sampling
30 and analysis, may not be counted as part of the five percent requirement unless there is additional
31 confirmation of designation independent of the generator designation. The generating unit's staff shall
32 not select the waste containers to be sampled and analyzed other than identifying containers for which
33 insufficient information is available to designate.

34 Containers of the following are exempt from the confirmation calculation above: Laboratory reagents or
35 other unused products such as paint, lubricants, solvent, or cleaning products, whether received for
36 redistribution, recycling, or as waste. To qualify for this exemption, such materials must be received at
37 the 331-C Storage Unit in their original containers.

38 Prior to acceptance of wastes at the 331-C Storage Unit, confirmation of designation may be required.
39 Wastes that shall undergo confirmation of designation may be divided into two groups; those that easily
40 yield a representative sample (Category I) and those that do not (Category II). The steps for each type are
41 outlined below along with a description of which wastes fall into each category:

42 Category I. If a waste that easily yields a representative sample is received, a representative sample will
43 be taken from the waste containers selected. If more than one phase is present, each phase must be tested
44 individually. The following field tests will be performed as appropriate for the waste stream:

- Reactivity—oxidizer, cyanide, and sulfide tests. These tests will not be performed on materials known to be organic peroxides, ethers, and/or water reactive compounds.

- 1 • Flashpoint/explosivity—Closed cup flashpoint measurement instrument.
- 2 • pH—by pH meter or pH paper (SW-846-9041)^{1,2}. This test will not be performed on non-aqueous
- 3 materials.
- 4 • Halogenated organic compounds.
- 5 • Volatile organic compounds—by photo or flame ionization tester¹, by gas chromatography with or
- 6 without mass spectrometry, or by melting point and/or boiling point determination.

7 If the sample data observed meets the parameters specified in their documentation, the confirmation of
8 designation is complete, and the waste may be accepted. If not, the waste is rejected and returned to the
9 generating unit for additional characterization. The waste will be required to be resubmitted with a
10 revised Disposal Request following the additional characterization activity.

11 When mathematically possible, the Permittees shall perform confirmation on an equal number of
12 Category I and Category II containers.

13 Category II. If a representative sample is not easily obtained (for example, discarded machinery or shop
14 rags), or if the waste is a labpack or discarded laboratory reagent container, the following steps will be
15 performed:

- 16 a. Visually verify the waste. Examine each selected container to verify that it matches the data provided
- 17 on the Disposal Request form(s) provided to document the waste. Labpacks and combination
- 18 packages that are accepted from non-PNNL generators must be removed from the outer container. If
- 19 the waste matches the description specified in its documentation, confirmation of designation is
- 20 complete, and the waste may be accepted. If not, the waste is rejected and returned to the generating
- 21 unit, and the generating unit revises and resubmits the documentation to reflect the actual contents. If
- 22 necessary, the waste shall be re-designated utilizing the designation methods identified in
- 23 WAC 173-303-070 through 173-303-100.

24 3.3.2 Criteria and Rational for Parameter Selection

25 Waste-testing methods, parameters, and the rationale for these parameters are summarized in Table 3-1.
26 Waste testing methods and references to these methods are as specified in WAC 173-303-110(3) (e.g.,
27 *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods*, EPA SW-846 and *Chemical*
28 *Testing Methods for Designating Dangerous Waste*, Ecology Publication 97-407) or approved by Ecology
29 in accordance with WAC 173-303-110(5). These methods are summarized in Table 3-1.

30 Testing parameters for each type of waste were selected to obtain data sufficient to designate the waste
31 properly under WAC 173-303-070, meet requirements for Land Disposal Restrictions, and manage the
32 waste properly. If information on the source of the waste is available, then all parameters might not be
33 required, e.g., exclusion of testing for pesticides from a metal-machining operation.

34 Some of the parameters that are considered for waste received at the 331-C Storage Unit are as follows.

- 35 • Physical description—used to determine the general characteristics of the waste. This facilitates
- 36 subjective comparison of the sampled waste with previous waste descriptions or samples. A physical
- 37 description is also used to verify the observational presence or absence of free liquids.
- 38 • pH—used to identify the pH and corrosive nature of an aqueous or solid waste to aid in establishing
- 39 compatibility strategies and to indicate if the waste is acceptable for treatment and/or storage in the
- 40 325 Hazardous Waste Treatment Units (HWTUs).

¹Theses instruments are field calibrated or checked for accuracy daily when in use.

² The pH paper must have a distinct color change every 0.5-pH units, and each batch of paper must be calibrated against certified pH buffers or by comparison with a pH meter calibrated with certified pH buffers.

- 1 • Cyanide—used to indicate whether the waste produces hydrogen cyanide upon acidification below
2 pH 2.
- 3 • Sulfide screen—used to indicate if the waste produces hydrogen sulfide upon acidification below pH 2.
- 4 • Halogenated hydrocarbon content screen—used to indicate whether chlorinated hydrocarbons or
5 polychlorinated biphenyls (PCBs) are present in waste and to determine if the waste needs to be
6 managed in accordance with the regulations prescribed in the *Toxic Substance Control Act of 1976*.
- 7 • Ignitability—used to identify waste that must be managed and protected from sources of ignition or
8 open flame.
- 9 • Testing kits—used to determine waste characteristics and verify generator knowledge. The testing
10 procedures for each test are included in the appropriate test kit.

11 3.3.3 Special Parameter Selection Requirements

12 The 331-C Storage Unit does not have any process vents that manage hazardous waste with organic
13 concentrations of at least 10 parts per million by weight percent, or pumps, or compressors used more
14 than 300 hours per year that come into contact with hazardous waste with an organic concentration of at
15 least 10 percent by weight.

16 A variety of small volume chemical wastes is generated by PNNL's research laboratory activities. These
17 containers typically range in sizes from 10 ml to 20 gallon. These wastes are brought to the
18 331-C Storage Unit and segregated by compatibility for storage in the unit until enough waste is
19 accumulated to fill a labpack or bulking container, usually a 30- to 55-gallon drum. All containers having
20 a design capacity greater than 0.1 m³ to less than or equal to 0.46 m³ are equipped with a cover and
21 complies with all applicable Department of Transportation regulations on packaging hazardous waste for
transport under 49 CFR part 178.

23 DOT approved intermediate bulk packaging may be utilized for some solid wastes. These containers
24 range in size from 0.1 cu yard (27 cu ft) to 1.6 cu yard (43 cu ft) and are approved for solid waste only.

25 3.4 SELECTING SAMPLING PROCEDURES

26 3.4.1 Sampling Strategies and Equipment

27 Sample collection methods conform to the representative sample methods referenced in
28 WAC 173-303-110(2). The summary of test parameters, rationales, and testing methods are identified in
29 Table 3-1.

30 Representative samples of liquid waste from containers (vertical "core sections") are typically obtained
31 using a composite liquid waste sampler (COLIWASA) or tubing, as appropriate. The sampler is long
32 enough to reach the bottom of the container in order to provide a representative sample of all phases of
33 the containerized liquid waste. If a liquid waste has more than one phase, each phase is separated for
34 individual testing, depending on the waste management pathways of the phases.

35 Other waste types that might require sampling are sludges, powders, and granules. In general, nonviscous
36 sludges are sampled using a COLIWASA. Highly viscous sludges and cohesive solids are sampled using
37 a trier, as specified in SW-846. Dry powders and granules are sampled using a thief, also as specified in
38 SW-846.

39 Samplers are constructed of material compatible with the waste. In general, aqueous liquids are sampled
40 using polyethylene samplers, organic liquids using glass samplers, and solids using polyethylene
41 samplers. Disposable samplers are used whenever possible to eliminate the potential for cross-
contamination. If non-disposable sampling equipment is used, it is decontaminated between samples.

1 Representative sampling may be requested by unit staff to verify proper waste identification. Unit
2 personnel or the generating unit producing the waste may perform sampling. The number of grab
3 samples collected from a container depends on the amount of waste present and on the homogeneity of
4 the waste as determined by observation. In some cases, there will be only one container of waste present.
5 In such cases, only one vertical composite sample will be collected (e.g., COLIWASA). If more than one
6 container is present, a random number of samples will be collected and analyzed statistically using the
7 procedures specified in Section 9.2 of SW-846.

8 In all instances, sampling methods will conform to the representative sample method referenced in
9 WAC 173-303-110(2), i.e., ASTM standards for solids and SW-846 for liquids. The specific sampling
10 methods and equipment used varies with the chemical and physical nature of the waste material and the
11 sampling circumstances.

12 **3.4.2 Sampling Preservation and Storage**

13 All sample containers, preservation techniques, and hold times follow SW-846 protocol. Many samples
14 are analyzed at the 331-C Storage Unit utilizing prepackaged test kits and are not preserved.

15 **3.4.3 Sampling QA/QC Procedures**

16 Pacific Northwest National Laboratory is committed to maintaining a high standard of quality for all of its
17 activities. A crucial element in maintaining that standard is a quality-assurance program that provides
18 management controls for conducting activities in a planned and controlled manner and enabling the
19 verification of those activities.

20 The QA/QC objective of the 331-C Storage Unit is to control and characterize errors associated with
21 collected data and to illustrate that waste testing has been performed according to specification in this
22 waste analysis plan.

23 The 331-C Storage Unit will verify that precision and accuracy are maintained throughout the waste
24 analysis process. For analysis using SW-846 methods, the program will follow the QA/QC guidance set
25 forth in SW-846 at a minimum. Good laboratory practices that encompass sampling, sampling handling,
26 housekeeping, and safety are followed throughout the process. There are many elements of QA/QC
27 associated with the sampling processes at the 331-C Storage Unit. These practices verify that all data and
28 the decisions based on that data are technically sound, statistically valid, and properly documented.

29 Activities pertaining to waste analysis include, but are not limited to, the preparation, review, and control
30 of procedures and the selection of analytical laboratories. The Laboratory's QA standards-based
31 management system subject area has administrative procedures that establish requirements and provide
32 guidance for the preparation of analytical and technical (i.e., sampling, chain-of-custody, work processes)
33 procedures, as well as other administrative procedures. Procedures undergo a review cycle and, once
34 issued, are controlled to verify that only current copies are used.

35 The primary purpose of waste testing is to verify that the waste is properly characterized in lieu of
36 process-knowledge data in compliance with RCRA requirements for general waste analysis
37 [WAC 173-303-300(2); 40 CFR 264.13]. Waste testing also is performed to verify the safe management
38 of waste being stored, the proper disposition of residuals from incidents that might occur, and control of
39 the acceptance of waste for storage. The specific objectives of the waste-sampling and analysis program
40 at the 331-C Storage Unit are as follows:

- 41 • Identify the presence of waste that is substantially different from waste currently stored.
- 42 • Provide a detailed chemical and physical analysis of a representative sample of the waste before the
43 waste is accepted at or transferred from the 331-C Storage Unit to an offsite TSD facility to ensure
44 proper management and disposal.

- 1 • Provide an analysis that is accurate and up-to-date to ensure that waste is properly treated and
disposed of.
- 3 • Ensure safe management of waste undergoing storage at the 331-C Storage Unit.
- 4 • Ensure proper disposal of residuals.
- 5 • Ensure compliance with LDRs.
- 6 • Identify and reject waste that does not meet the 331-C Storage Unit's acceptance requirements
7 (e.g., incomplete information).
- 8 • Identify and reject waste that does not meet specifications for the 331-C Storage Unit
9 (i.e., Chapter 1.0, listing, restricted from storage at the 331-C Storage Unit).

10 **QA/QC Objectives**

11 The objective of the QA/QC program is to control and characterize any errors associated with the
12 collected data. Quality-assurance activities, such as the use of standard methods for locating and
13 collecting samples, are intended to limit the introduction of error. Quality-control activities, such as the
14 collection of duplicate samples and the inclusion of blanks in sample sets, are intended to provide the
15 information required to characterize any errors in the data. Other QC activities, such as planning the QC
16 program and auditing ongoing and completed activities, verify that the specified methods are followed
17 and that the QA information needed for characterizing error is obtained.

- 18 • Field inspections—performed and documented by 331-C Storage Unit staff or designee, depending on
19 the activity. The inspections primarily are visual examinations but might include measurements of
20 materials and equipment used, techniques employed, and the final products. The purpose of these
21 inspections is to verify that a specific guideline, specification, or procedure for the activity is
22 completed successfully.
- 23 • Field-testing—performed onsite by 331-C Storage Unit staff (or designee) according to specified
24 procedures or protocol identified by the manufacture's instructions supplied in the field test kits.
- 25 • Laboratory analyses—performed by onsite or offsite laboratories on samples of waste. The purpose of
26 the laboratory analyses is to determine constituents or characteristics present and the concentration or
27 level.

28 **Sampling Objectives**

29 The data-quality objectives (DQO) for the waste sampling and data analyses are as follows:

- 30 • Determine if waste samples are representative of the contents of the containers at the time the samples
31 were taken.
- 32 • Determine if waste samples are representative of long-term operations affecting the 331-C Storage
33 Unit.
- 34 • Determine if waste accepted for storage is within the Permit documentation limitations.
- 35 • Determine if waste accepted for storage meets the requirements of the 331-C Storage Unit waste-
36 acceptance criteria.
- 37 • Determine if waste accepted for storage meets the information provided by the generator.

38 **Data Collection/Sampling Objectives**

39 The acquired data need to be scientifically sound, of known quality, and thoroughly documented. The
40 DQOs for the data assessment will be used to determine compliance with national quality standards,
41 which are as follows:

- 1 • Precision—The precision will be the agreement between the collected samples (duplicates) for the
2 same parameters, at the same location, and from the same collection vessel.
- 3 • Representativeness—The representativeness will address the degree to which the data accurately and
4 precisely represent a real characterization of the population, parameter variation at a sampling point,
5 sampling conditions, and the environmental condition at the time of sampling. The issue of
6 representativeness will be addressed for the following points:
- 7 • Based on the generating process, the waste stream, and its volume, an adequate number of sampling
8 locations are selected.

9 The representativeness of selected media has been defined accurately

- 10 • The sampling and analytical methodologies are appropriate.
- 11 • The environmental conditions at the time of sampling are documented.
- 12 • Completeness—The completeness will be defined as the capability of the sampling and analytical
13 methodologies to measure the contaminants present in the waste accurately.
- 14 • Comparability—The comparability of the data generated will be defined as the data that are gathered
15 using standardized sampling methods, standardized analyses methods, and quality-controlled data-
16 reduction and validation methods.

17 **Analytical Objectives**

18 Analytical data will be communicated clearly and documented to verify that laboratory data-quality
19 objects are achieved.

20 **Field Quality Assurance and Quality Control**

21 Internal QA/QC checks will be established by submitting QA and QC samples to the analytical
22 laboratory. The number of field QA samples will be approximately 5 percent of the total number of field
23 samples taken. The 5-percent criterion commonly is accepted for a minimum number of QA/QC samples.
24 The types and frequency of collection for field QA samples are as follows:

- 25 • Field Blanks—A sample of analyte-free media taken from the laboratory to the sampling site and
26 returned to the laboratory unopened. Field blanks are prepared and preserved using sample containers
27 from the same lot as the other samples collected that day. A sample blank is used to document
28 contamination attributable to shipping and field-handling procedures. This type of blank is useful in
29 documenting contamination of volatile organics samples.
- 30 • Field Duplicates—defined as independent samples collected in such a manner that the samples are
31 equally representative of the variables of interest at a given point in space and time. The laboratory
32 will use the field duplicate as laboratory duplicate and/or matrix spikes. Thus, for the duplicate
33 sample, there will be the normal sample analysis, the field duplicate, and the laboratory duplicates
34 (inorganic analysis). Duplicate samples will provide an estimate of sampling precision.

35 **Laboratory Quality Assurance and Quality Control**

36 All analytical work, whether performed by independent laboratories, is defined and controlled by a
37 Statement of Work, prepared in accordance with administrative procedures. The daily quality of
38 analytical data generated in the analytical laboratories will be controlled by the implementation of an
39 analytical laboratory QA plan. At a minimum, the plan will document the following:

- 40 • sample custody and management practices
- 41 • requirements for sample preparation and analytical procedures
- 42 • instrument maintenance and calibration requirements
- 43 • internal QA/QC measures, including the use of method blanks

- required sample preservation protocols
- analysis capabilities.

The types of internal quality-control checks are as follows:

- **Method Blanks**—Method blanks usually consist of laboratory reagent-grade water treated in the same manner as the sample (i.e., digested, extracted, distilled) that is analyzed and reported as a standard sample would be reported.
- **Method Blank Spike**—A method blank spike is a sample of laboratory reagent-grade water fortified (spiked) with the analytes of interest, which is prepared and analyzed with the associated sample batch.
- **Laboratory Control Sample**—A QC sample introduced into a process to monitor the performance of the system.
- **Matrix Spikes**—An aliquot of sample spiked with a known concentration of target analyte(s). The spiking occurs prior to sample preparation and analysis. Matrix spikes will be performed on 5 percent of the samples (1 in 20) or one per batch of samples.
- **Laboratory Duplicate Samples**—Duplicate samples are obtained by splitting a field sample into two separate aliquots and performing two separate analyses on the aliquots. The analyses of laboratory duplicates monitor the precision of the analytical method for the sample matrix; however, the analyses might be affected by nonhomogeneity of the sample, in particular, by nonaqueous samples. Duplicates are performed only in association with selected protocols. Duplicates are performed only in association with selected protocols. Laboratory duplicates are performed on 5 percent of the samples (1 in 20) or one per batch of samples. If the precision value exceeds the control limit, then the sample set must be reanalyzed for the parameter in question.
- **Known QC Check Sample**—This is a reference QC sample as denoted by SW-846 of known concentration, obtained from the EPA, the National Institute of Standards and Technology, or an EPA-approved commercial source. This QC sample is taken to check the accuracy of an analytical procedure. The QC sample is particularly applicable when a minor revision or adjustment has been made to an analytical procedure or instrument. The results of a QC-check standard analysis are compared with the true values, and the percent recovery of the check standard is calculated.

PNNL Analytical Chemistry Laboratory QA/QC

PNNL's analytical chemistry laboratory may need to be used to analyze samples of high-activity dangerous waste. It has a rigorous QA plan that verifies that data produced are defensible, scientifically valid, and of known precision and accuracy, and meets the requirements of its clients.

Offsite Laboratory QA/QC

When it is necessary to send samples to an independent laboratory, contracts are not awarded until a pre-award evaluation of the prospective laboratory has been performed. The pre-award evaluation process involves the submittal of its QA plan to PNNL QA staff and the unit-operating supervisor. It also may involve a site visit by QA personnel and a technical expert, or may consist of a review of the prospective laboratories' QA/QC documents and records of surveillances/inspections, audits, non-conformances, and corrective actions maintained by PNNL or other Hanford Facility contractors.

1 **Recordkeeping**

2 Records associated with the waste-analysis plan and waste-verification program are maintained by the
3 waste-management organization. A copy of the Disposal Request for each waste stream accepted at the
4 331-C Storage Unit is maintained as part of the operating record. Generators maintain their sampling and
5 analysis records. The waste-analysis plan will be revised whenever regulation changes affect the waste-
6 analysis plan.

7 Staff of the 331-C Storage Unit has a goal of continuous improvement by verifying that all analytical data
8 produced are of known accuracy and precision, exceed all industry standards, and are scientifically valid.
9 Using the above practices and following the appropriate 331-C Storage Unit operating procedures, staff
10 can monitor and verify that progress is being made in the quality of the data produced.

11 **3.4.4 Health and Safety Protocols**

12 During all sampling activities, precautions will be taken to verify that waste containers do not expel gases
13 and/or pressurized liquids. All personnel will be properly trained in safety and handling techniques.

14 **3.5 SELECTING A LABORATORY, AND LABORATORY TESTING AND ANALYTICAL**
15 **METHODS**

16 **3.5.1 Selecting a Laboratory**

17 Laboratory selection is limited. Preference will be given to any PNNL facility or other laboratories on the
18 Hanford Facility that exhibit demonstrated experience and capabilities in three major areas:

- 19 • comprehensive written QA/QC program based on DOE-RL requirements specifically for that
20 laboratory
21 • audited for effective implementation of QA/QC program
22 • participate in performance-evaluation samples to demonstrate analytical proficiency.

23 All laboratories (onsite or offsite) are required to have the following QA/QC documentation:

- 24 • Daily analytical data generated in the contracted analytical laboratories are controlled by the
25 implementation of an analytical laboratory QA plan.
26 • Before commencement of the contract for analytical work, the laboratory will have its QA plan
27 available for review. At a minimum, the QA plan will document the following:
28 • sample custody and management practices
29 • requirements for sample preparation and analytical procedures
30 • instrument maintenance and calibration requirements
31 • internal QA/QC measures, including the use of method blanks
32 • required sample preservation protocols
33 • analysis capabilities.

3.5.2 Selecting Testing and Analytical Methods

PNNL waste generators may need to conduct analyses to provide information to fill out a Disposal Request form and to determine compatibility, safety, and operating information. As needed, 331-C Storage Unit staff also will conduct analyses to determine completeness of information and if the waste meets the acceptance criteria for disposal, treatment, or storage at one of the Hanford Facility-permitted treatment/storage/disposal areas or that of one of the offsite TSD facilities. Testing and analytical methods will depend on the type of analysis sought and the reason for needing the information.

Chemists and/or appropriate personnel working under approved QA guidelines perform all testing. Analytical methods will be selected from those that are described in Section 3.3.1.

3.6 SELECTING WASTE RE-EVALUATION FREQUENCIES

Some analysis will be needed to verify that waste streams received by the 331-C Storage Unit conform to the information on the Disposal Request and or the waste analysis sheet supplied by the generator. If discrepancies are found between information on the Disposal Request, hazardous-waste manifest, shipping papers, waste-analysis documentation, and verification analysis, then the discrepancy will be resolved by:

- returning waste to the generator, or sample and analyze the materials in accordance with WAC 173-303-110; and/or
- reassessing and re-designating the waste, repackaging and labeling as necessary, or return to the generator.

Periodic re-evaluation provides verification that the results from the initial verification are still valid. Periodic re-evaluation also checks for changes in the waste stream.

Exceptions to physical screening for verification are:

Analysis and characterization, as required by WAC 173-303-300(2), are performed on each waste before acceptance at the 331-C Storage Unit to determine waste designation and characteristics. The characterization of the waste, based on this information, is reviewed each time a waste is accepted. The generator must update the information when the waste stream changes or if the following occurs.

- The 331-C Storage Unit personnel have reason to suspect a change in the waste, based on inconsistencies in packaging, labeling, or visual inspection of the waste.
- The information submitted previously does not match the characteristics of the waste submitted.

Sampling and laboratory analysis could be required to verify or establish waste characteristics for waste that is stored at the 331-C Storage Unit. The following are instances where sampling and laboratory analysis are required:

- inadequate information on PNNL-generated waste
- waste streams generated onsite will be verified at 5 percent of each waste stream
- inadequate information before waste was shipped or discrepancy discovered
- waste streams received from offsite generators will be verified at 10 percent of each waste stream applied per generator, per shipment
- identification and characterization for unknown waste and spills.

1 **3.7 SPECIAL PROCEDURAL REQUIREMENTS**

2 **3.7.1 Procedures for Receiving Waste From off-site Generators**

3 Most of the waste stored at the 331-C Storage Unit is generated on the Hanford Site and/or by PNNL
4 research programs within the 300 Area. Additional requirements for waste generated outside the
5 300 Area include proper manifesting (if appropriate) to the 331-C Storage Unit and proper packaging for
6 transport over public roadways. Although PNNL waste generated outside of the 300 Area is considered
7 to be generated offsite since it may be transported to the 331-C Storage Unit on roads accessible to the
8 public, it is under the same administrative controls as wastes that are generated onsite (i.e., in the
9 300 Area).

10 The generator is responsible for identifying waste composition accurately, and PNNL waste operations
11 will arrange for the transport of the waste. The 331-C Storage Unit maintains a copy of any pertinent
12 operating record in accordance with WAC 173-303 and the timeframes described in DOE/RL-91-28,
13 Chapter 12, Table 12.1. The waste-tracking methods are as follows.

- 14 • **Inspection of Shipping Papers/Documentation**—The necessary shipment papers for the entire
15 shipment are verified (i.e., signatures are dated, all waste containers included in the shipment are
16 accounted for and correctly indicated on the shipment documentation, there is consistency throughout
17 the different shipment documentation, and the documentation matches the labels on the containers).
- 18 • **Inspection of Waste Containers**—The condition of waste containers is checked to verify that the
19 containers are in good condition (i.e., free of holes and punctures).
- 20 • **Inspection of Container Labeling**—Shipment documentation is used to verify that the containers are
21 labeled with the appropriate "Hazardous/Dangerous Waste" labeling and associated markings
22 according to the contents of the waste container.
- 23 • **Acceptance of Waste Containers**—The 331-C Storage Unit personnel signs the shipment documents
24 and retains a copy.

25 If shipment will be received from or destined offsite, then a uniform hazardous waste manifest will be
26 prepared identifying the 331-C Storage Unit as the receiving unit (Hanford Facility RCRA Permit
27 Condition IIP). The 331-C Storage Unit operations staff will sign and date the manifest to certify that the
28 dangerous waste covered by the manifest was received. The transporter will be given at least one copy of
29 the signed manifest. A copy of the manifest will be returned to the generator within 30 days of receipt at
30 the 331-C Storage Unit. A copy of the manifest also will be retained in the 331-C Storage Unit operating
31 record.

32 For onsite waste transfers subject to the Hanford Facility RCRA Permit Condition II.Q.1, documentation
33 meeting that requirement will be prepared and will accompany the shipment. The documentation will be
34 maintained in the Operating Record. Onsite transfers traveling on public or private rights-of-way within
35 or along the border of contiguous Hanford Site property may also be tracked using an alternate tracking
36 system as allowed by Hanford Facility RCRA Permit Condition IIP.2.

37 **Response to Significant Discrepancies**

38 The primary concern during acceptance of containers for storage is improper packaging or manifest
39 discrepancies. Containers with such discrepancies are not accepted at the 331-C Storage Unit until the
40 discrepancy has been resolved. Depending on the nature of the condition, such discrepancies can be
41 resolved using one or more of the following alternatives.

- 1 • Incorrect or incomplete entries on the uniform hazardous waste manifest can be corrected or
2 completed with concurrence of the onsite generator or offsite generator. Corrections are made by
3 drawing a single line through the incorrect entry. Corrected entries are initialed and dated by the
4 individual making the correction.
- 5 • The waste packages can be held and the onsite generator or offsite waste generator requested to
6 provide written instructions for use in correcting the condition before the waste is accepted.
- 7 • Waste packages can be returned as unacceptable.
- 8 • If a noncompliant dangerous waste package is received from an offsite waste generator, the waste
9 package is non-returnable because of condition, packaging, etc., and if an agreement cannot be
10 reached among the involved parties to resolve the noncompliant condition, then the issue will be
11 referred to DOE-RL and Ecology for resolution. Ecology will be notified in writing if a discrepancy
12 is not resolved within 15 days after receiving a noncompliant shipment. Pending resolution, such
13 waste packages, although not accepted, might be placed in the 331-C Storage Unit. The package(s)
14 will be segregated from other waste, and an entry will be made into the 331-C Storage Unit logbook
15 describing the actions that were taken to store the packages in a safe manor until a resolution has been
16 reached.

17 **Activation of Contingency Plan for Damaged Shipment**

18 If waste shipments arrive at the 331-C Storage Unit in a condition that presents a hazard to public health
19 or the environment, the Building Emergency Procedure is implemented as described in Chapter 7.0 for
20 the 331-C Storage Unit.

1 **3.7.2 Procedures for Ignitable, Reactive, and Incompatible Wastes**

22 Ignitable, reactive, and incompatible wastes are stored in compliance with Uniform Fire Code Division II
23 regulations for Container and Portable Tank Storage Inside Buildings (International Conference of
24 Building Officials 1988). Containers of ignitable, reactive, and incompatible wastes are stored in
25 individual flammable material storage cabinets within the storage cells or in a flammable cabinet in the
26 bay area.

27 Chapter 6 describes precautions used at 331-C Storage Unit so that incompatible wastes are not stored
28 together. Chemical wastes stored in 331-C Storage Unit are separated by chemical makeup and hazard
29 class and stored in areas having appropriate secondary containment, as described in Chapter 4.

30 As shown in Chapter 4, each storage area has individual storage configurations; secondary containment
31 structures are provided to verify that incompatible materials will not commingle if spilled. Further
32 segregation is provided by chemical storage cabinets located throughout the unit in various areas as
33 shown in Chapter 4. Cabinet types are noted in those figures, and capacities are described in Table 4-1.
34 Incompatible wastes are never placed in the same container or in unwashed containers that previously
35 held incompatible waste.

36 Compliance with WAC 173-303-395(1)(b) is assured by utilizing this system and the procedure for
37 handling ignitable or reactive waste and mixing of incompatible waste, as described in Chapter 6.

38 **3.7.3 Procedures to Ensure Compliance with LDR Requirements**

39 **LDR Waste-Analysis Requirements**

40 The *Hazardous and Solid Waste Amendments of 1984* prohibit the land disposal of certain types of wastes
41 that are subject to RCRA. Most of the waste types stored at the 331-C Storage Unit falls within the
42 purview of these land-disposal restrictions (LDRs). Information presented below describes how

1 generators and 331-C Storage Unit personnel characterize, document, and certify waste subject to LDR
2 requirements.

3 Waste must be analyzed using the Toxicity Characteristic Leaching Procedure (TCLP) in accordance with
4 Appendix II of 40 CFR 261, as amended, in order to provide sufficient information for proper
5 management and for decisions regarding LDR pursuant to 40 CFR 268.

6 **Waste Characterization**

7 Before being received at the 331-C Storage Unit, the RCRA waste characteristics, the level of toxicity
8 characteristics, and the presence of listed wastes are determined during the physical and chemical
9 analyses process. This information allows waste-management personnel to make all LDR determinations
10 accurately and complete appropriate notifications and certifications.

11 **Sampling and Analytical Procedures**

12 The LDR characterization and analysis is generally performed as part of the waste-characterization and
13 analysis process. If waste is sampled and analyzed for LDR characterization, then only EPA or
14 equivalent methods are used to provide sufficient information for proper management and for decisions
15 regarding LDRs pursuant to 40 CFR 268.

16 **Frequency of Analysis**

17 Before acceptance and during the waste-characterization and analysis process, all LDR characterizations
18 and designations are made. The characterization and analysis process is performed when a Disposal
19 Request is submitted for waste pick-up, unless there is insufficient data, or if the waste stream has
20 changed. Instances where sampling and laboratory analysis may be required to determine accurate LDR
21 determinations include the following:

- 22 • when waste-management personnel have reason to suspect a change in the waste based on
23 inconsistencies on the Disposal Request, packaging, or labeling of the waste
- 24 • when the information submitted previously by a generator does not match the characteristics of the
25 waste that was submitted
- 26 • when the offsite TSD facility rejects the waste because the fingerprint samples are inconsistent with
27 the waste profile provided by the 331-C Storage Unit that was established using generator
28 information.

29 Dangerous waste types listed in Table 3-1 are sampled as needed on an individual container or batch basis
30 before they are collected from the point of generation or prior to shipment offsite. After the dangerous
31 constituents have been characterized, these waste streams will not be analyzed again until process or raw
32 material changes occur.

33 **Documentation and Certification**

34 The 331-C Storage Unit has and will continue to receive and store LDR waste. Because 331-C Storage
35 Unit personnel determine designations and characterization, including LDR determinations, qualified staff
36 for PNNL-generated waste prepare all notifications and certifications, as required by 40 CFR 268. The
37 331-C Storage Unit staff collects from the generator(s) the information pursuant to 40 CFR 268 regarding
38 LDR waste. The notifications and certifications are submitted to onsite and offsite TSD units during the
39 waste-shipment process. Additionally, any necessary LDR variances are prepared and submitted by
40 PNNL qualified staff.

41 The 331-C Storage Unit staff requires applicable LDR information/notifications from non-PNNL
42 generators.

43 Where an LDR waste does not meet the applicable treatment standards set forth in 40 CFR 268,
44 Subpart D, or exceeds the prohibition levels set forth in 40 CFR 268.32 or Section 3004(d) of RCRA, the

331-C Storage Unit provides to the onsite and offsite TSD a written notice that includes the following information:

- EPA hazardous-waste number
- the corresponding treatment standards and all applicable prohibitions set forth in WAC 173-303, 40 CFR 268.32, or RCRA Section 3004(d)
- the manifest number associated with the waste
- all available waste-characterization data
- identification of underlying hazardous constituents.

In instances where 331-C Storage Unit staff determines that a restricted waste is being managed that can be land-disposed without further treatment, 331-C Storage Unit staff submits a written notice and certification to the onsite or offsite TSD where the waste is being shipped, stating that the waste meets applicable treatment standards set forth in WAC 173-303-140 (40 CFR 268, Subpart D), and the applicable prohibition levels set forth in 40 CFR 268.32 or RCRA Section 3004(d). The notice includes the following information:

- EPA hazardous-waste number
- corresponding treatment standards and applicable prohibitions
- waste-tracking number associated with the waste
- all available waste-characterization data
- identification of underlying hazardous constituents.

The certification accompanying any of the notices previously described is signed by an authorized representative of the generator and states the following:

I certify under penalty of law that I personally have examined and am familiar with the waste through analysis and testing or through knowledge of the waste to support this certification that the waste complies with the treatment standards specified in 40 CFR Part 268 Subpart D and all applicable prohibitions set forth in 40 CFR 268.32 or RCRA Section 3004(d). I believe that the information I submitted is true, accurate, and complete. I am aware that there are significant penalties for submitting a false certification, including the possibility of a fine and imprisonment.

Copies of all notices and certifications described are retained at the TSD unit for at least 5 years from the date that the waste was last sent to an onsite or offsite TSD unit. After that time, the notices and certifications are sent to Records Storage.

3.8 MANIFEST SYSTEM

The Hanford Site has one EPA/state identification number, as required by WAC 173-303-060, and all TSD units on the Hanford Site (such as the 331-C Storage Unit) are considered part of one dangerous waste facility. Therefore, onsite shipments of dangerous waste are not subject to the manifesting requirements specified in WAC 173-303-370 and -180. The 331-C Storage Unit has an onsite waste tracking system akin to a manifest system, which is voluntarily used for transporting waste on the Hanford Facility.

A uniform hazardous waste manifest is used for all off-site shipments of dangerous waste received at the 331-C Storage Unit, as well as for all off-site shipments of dangerous waste from the 331-C Storage Unit. In addition to the uniform hazardous waste manifest, wastes subject to land disposal restrictions that are shipped from the 331-C Storage Unit to off-site treatment, storage, or disposal facilities are accompanied by the applicable notifications and certifications required under 40 CFR 268.

The following sections provide information on receiving shipments, response to manifest discrepancies, and provisions for nonacceptance of shipments.

3.8.1 Procedures for Receiving Shipments

The following are procedures used prior to transport of wastes to the 331-C Storage Unit. First, the generator must submit a chemical disposal/recycle request form to the waste management organization. This request form is then reviewed and either approved or rejected. Typical causes of rejection include missing or insufficient information in any of the data fields or lack of specific information on waste composition. Upon approval, the waste management organization reviews the form to determine the dangerous waste designation, waste compatibility class for storage, and containerization and labeling requirements.

Waste Management personnel verify the information contained on the request form, such as number, sizes, and types of containers, location of waste, etc., check for proper containerization of waste, and then inspect the waste at the generating unit. If discrepancies are noted during the inspection, Waste Management personnel will not pick up the waste. Typical discrepancies include waste not as described on request form or lack of supporting data to verify waste characteristics. In such cases, deficiencies will be explained to the generating unit responsible person, who will then be responsible for correcting them.

If the waste is found to be acceptable for transport, Waste Management staff will check to verify that required labels are in place and transport (or arrange for transport of) the waste to the 331-C Storage Unit. If transport will be over public roadways or highways, a uniform hazardous waste manifest will be prepared identifying PNNL as the transporter and the 331-C Storage Unit as the receiving TSD unit. Alternate tracking systems may be used in certain cases as allowed by Hanford Facility RCRA Permit Condition ILP.2. A copy of all such manifests or alternate tracking documents is returned to the generating unit within 30 days of receipt at the 331-C Storage Unit. A copy of the manifest or alternate document is also retained at the 331-C Storage Unit.

3.8.2 Response to Significant Discrepancies

Waste shipments received at the 331-C Storage Unit containing manifest discrepancies are not accepted unless the discrepancy or discrepancies can be resolved with the generating unit at the time the shipment arrives. Manifest discrepancies requiring such resolution include:

- Variations exceeding 10 percent in weight for bulk shipments such as tank trucks or tank cars (generally not applicable to 331-C Storage Unit since most shipments are in drums or other containers);
- Any inaccuracy in piece counts in containerized shipments (underage or overage);
- Type mismatches (i.e., the waste is not as described on the request form; obvious inaccuracies such as waste acid substituted for waste solvent).

Manifest information will also be considered incorrect if the written description of wastes does not agree with visual observations, or if observed weights or volumes differ by more than 10 percent from those described on the manifest.

If a discrepancy is noted, the generating unit will be contacted immediately. The waste will not be accepted for storage until the discrepancy is resolved. The generating unit will be asked to identify the source of the discrepancy (e.g., error in estimating volume or weight, incorrect identification of waste, etc.). Once the cause of the discrepancy is identified, and the generating unit and the waste management organization have concurred as to resolution of the discrepancy, the manifest will be corrected. Corrections will be made by drawing a single line through the incorrect entry and entering the correct information. Corrected entries will be initialed and dated by the individual making the correction. Once the manifest has been corrected, the discrepancy will be considered resolved.

Certain manifest discrepancies may be discovered after receipt, such as analytical data indicating incorrect designation, which may result in incorrect naming of the shipment on the manifest. Such discrepancies will be managed as noted above; if, however, the discrepancy cannot be resolved within

1 15 days of receipt of the shipment, the 331-C Storage Unit will file the report required by WAC 173-303-
2 370(4)(b) as described in Chapter 12.0, Section 12.4.1.1.1.

3 **3.8.3 Provisions for Nonacceptance of Shipment**

4 Provisions for nonacceptance of shipments are discussed in the following sections.

5 **3.8.3.1 Nonacceptance of Undamaged Shipment**

6 All wastes are inspected by staff from the waste management organization prior to shipment and are
7 transported to the 331-C Storage Unit by waste management organization staff. This procedure is
8 designed to prevent receipt of nonacceptable wastes. Waste management organization staff will refuse to
9 accept or transport wastes, which are nonacceptable at the 331-C Storage Unit.

10 **3.8.3.2 Activation of BEP/Contingency Plan for Damaged Shipment**

11 All wastes are inspected by staff from the waste management organization prior to shipment and are
12 primarily transported to the 331-C Storage Unit by waste management organization staff. Damaged
13 containers will not be accepted from the generator and will not be transported. The only opportunity for
14 receipt of damaged containers, therefore, would be if containers were damaged during transportation. If a
15 shipment of waste is damaged during transportation, and arrives in a condition that presents a hazard to
16 public health or to the environment, the facility BEP/contingency plan will be implemented as described
17 in Chapter 7.0.

18 **3.8.4 Unmanifested Waste**

19 Waste generated within the Hanford Site is not transported over public highways and is not subject to
20 manifest requirements under WAC 173-303. Such waste may be received at the 331-C Storage Unit
21 without a manifest. However, a completed and approved disposal request form must accompany all
22 wastes (including unmanifested waste).

23 If transport is by public roadways or highways, a manifest or alternate tracking system (if appropriate per
24 Hanford Facility RCRA Permit Condition II.P.2) must be used. Shipments requiring a manifest that do
25 not have one, will either be rejected or at the sole discretion of the unit operator the unit will accept the
26 waste and file an unmanifested waste report as described in WAC 173-303-390(1) and detailed in
27 Chapter 12.0.

1

Table 3.1. Summary of Test Parameters, Rationales, and Methods

Parameter ^(a)	Method ^(b)	Rationale for Selection
Physical Screening		
Visual inspection	Field method—observe phases, presence of solids in waste	Confirm that waste matches that described on waste acceptance documentation; identify waste prohibited by LDR requirements related to downstream TSD unit acceptance criteria
Chemical Screening		
Water miscibility/separable organics ^c	Water mix screen ASTM Method D5232-92	Confirm that waste matches that described on waste acceptance documentation; identify separable organics; identify waste prohibited by LDR requirements related to downstream TSD unit acceptance criteria
Oxidizer	Oxidizer Screen	Confirm that waste matches that described on waste acceptance documentation; verify compliance with WAC 173-303-395(1)(b)
pH	pH screen SW-846 Method 9041	Confirm that waste matches that described on waste acceptance documentation; verify compliance with WAC 173-303-395(1)(b)
Cyanides	Cyanide screen	Confirm that waste matches that described on waste acceptance documentation; verify compliance with WAC 173-303-395(1)(b)
Sulfides	Sulfide screen	Confirm that waste matches that described on waste acceptance documentation; verify compliance with WAC 173-303-395(1)(b)
Flashpoint	Flashpoint measurement instrument	Confirm that waste matches that described on waste acceptance documentation
Halogenated/Volatile Organic Compounds	Photoionizer or Flame Ionizer, or Clor-D-Tect Kits(c)	Confirm that waste matches that described on waste acceptance documentation
Pre-Shipments Review		
Mercury (total)	Generator knowledge or SW-846 Method 7470/7471	Identify waste prohibited by LDR requirements related to downstream TSD unit acceptance criteria.
Toxicity characteristic organic compounds	Generator knowledge or SW-846 Methods 1311 and 8260 (volatile organic compounds) and 8270 (semivolatile organic compounds)	Identify waste not identified in Chapter 1.0, Part A
Polycyclic aromatic hydrocarbons	Generator knowledge or SW-846 Method 8270 or 8100	Identify waste not identified in Chapter 1.0, Part A, (for waste with >1% solids and for which WP03 could apply)

- (a) Addition parameters can be used on current waste acceptance criteria of the downstream TSD unit. Operation limits transfer/shipments are based on current waste acceptance criteria.
- (b) Procedures based on EPA SW-846, unless otherwise noted. When regulations require a specific method, the method shall be followed.
- (c) These tests will not be performed on materials known to be organic peroxides, ether, and/or water reactive compounds.

2

Chapter 4.0

Process Information

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4.0 PROCESS INFORMATION

4.1 CONTAINERS

The following sections describe the types of containers stored at the 331-C Storage Unit.

4.1.1 Description of Containers

Containers of hazardous waste entering the 331-C Storage Unit are inspected before being accepted for storage. Generating units are responsible for placing the materials in adequate containers. Waste not in its original container must be placed in containers that are compatible with the materials to be stored.

Containers in poor condition or inadequate for storage are not accepted at the unit. If transport is by unit personnel, such containers are not accepted for transport. Refer to Section 6.4.1 for inspection before transport performed by unit personnel. "Container in poor condition or inadequate for storage" means a container that is not intact or undamaged and not securely sealed to prevent leakage during storage, transport and ultimate offsite disposal. Examples of acceptable packaging include laboratory reagent bottles, DOT containers, spray cans, sealed ampoules with septums, paint cans, leaking containers that have been overpacked, etc. Unit operations personnel have the authority to determine whether a container is in poor condition or inadequate for storage, using the criteria of WAC 173-303-190 and professional judgment whether the packaging may leak during handling, storage and/or disposal.

All flammable liquid waste is stored in compatible DOT-specified shipping containers and/or in Underwriter's Laboratory (UL)-listed and Factory Mutual (FM)-approved flammable storage cabinets. Solid chemicals are stored on shelving in specifically designated areas based on the DOT hazard classification.

All containers utilized for offsite transport of dangerous waste at the unit are selected and shall comply with all applicable criteria found in WAC 173-303-190.

4.1.2 Container Management Practices

Management practices for containers of dangerous waste are in place at the 331-C Storage Unit to verify the safe receipt, handling, preparation for transport, and transportation of waste. These practices and procedures are summarized below.

Inspection of Containers. A system of daily, weekly, monthly, and yearly inspections is in place to verify container integrity, check for proper storage location, prevent capacity overrun, etc. These inspection activities are detailed in Chapter 6.0, Section 6.2.

Container Handling. All unit staff is instructed in proper container handling safeguards as part of their training. Containers are always kept closed except when adding or removing waste, in accordance with WAC 173-303-630(5)(a).

Containers are not opened, handled or stored in a manner that would cause the container to leak or rupture. Small containers (five gallons or less capacity) are stored on shelving or in approved flammable liquid storage lockers (if appropriate). Containers over five gallons capacity are stored on the floor of the appropriate storage cell, in cabinets, or stored in the appropriate containment area on the bay floor. Unnecessary handling not required for redistribution or preparation for transport and disposal by either lab packing or bulking is minimized. For manual movement, hand trucks specifically designed for drum

1 handling are used. When using the forklift, a drum hoist is used or the drums are carried on pallets.
2 Drums are never carried on the forks or "speared" by slipping the forks under the chime. When waste
3 handling operations are conducted, at least two persons are present in the unit.

4 Lab Packing. One of the major functions of the 331-C Storage Unit is the preparation of lab packs for
5 offsite recycling, treatment and/or disposal of small quantity lab waste generated by DOE-RL/PNNL
6 activities.

7 Lab packs are prepared in compliance with WAC 173-303-161, 49 CFR 173.12, other applicable
8 regulations, and requirements of the planned receiving facility (recycler, treatment facility, or disposal
9 facility). Requirements affecting preparation of lab packs might include types of absorbent materials to
10 be used (e.g., no vermiculite).

11 Lab packs are prepared in the bay area or in the storage cell containing the hazard class(es) to be placed
12 in the lab pack.

13 Partial and completed lab packs are closed, labeled, and the contents list documented. Lab packs are
14 stored in the cell from which the containers inside were drawn, or in the bay area if appropriate.

15 Unit personnel wear appropriate protective clothing while handling containers being placed in lab packs.
16 At a minimum this includes lab coats or long sleeved shirt, long pants, safety glasses or other protective
17 eyewear, and chemical resistant gloves. More stringent requirements, including use of respiratory
18 protection, may be imposed if appropriate.

19 Bulking. In order to promote greater recycling or treatment of waste and reduce land disposal, some
20 liquid wastes are "bulked" into larger containers, typically 30- or 55-gallon closed head drums. Bulking
21 of nonvolatile, low hazard waste such as saline solutions or ethylene glycol may be done within the
22 containment areas of the appropriate storage cell or bay area.

23 Compatibility of waste to be bulked is determined using the information from generating unit designation
24 information, process knowledge, laboratory analyses, and/or by compatibility determinations.

25 Glass containers emptied (as defined by WAC 173-303-160(2)) as a result of bulking activities are
26 usually crushed onsite by an electric glass crusher, which mounts on a 55-gallon drum or managed as
27 solid waste in accordance with WAC 173-303-160(3). If an emptied glass container held acutely
28 hazardous waste, as defined by WAC 173-303-040(2), the container is rinsed at least three times with an
29 appropriate cleaner or solvent before being destroyed. The rinsates are managed as dangerous waste.

30 Once bulking is complete, the bulk container is closed, labeled, and the contents list documented.
31 Containers of bulked waste are stored in the cell from which the containers inside were drawn, or in the
32 bay area if appropriate.

33 Unit personnel wear appropriate protective clothing while bulking containerized liquid waste. At a
34 minimum this includes coveralls, or long sleeved shirt, long pants, disposable splash-resistant apron, eye
35 protection, and chemical resistant gloves. More stringent requirements, including use of respiratory
36 protection, may be imposed if appropriate.

37 4.1.3 Container Labeling

38 As required by WAC 173-303-630, all containers of dangerous waste are marked and/or labeled to
39 describe the contents of the container and the major hazards of the waste. Containers are also marked
40 with a unique identifying number assigned by the unit's computerized waste tracking system.

1 **4.1.4 Containment Requirements for Storing Containers**

2 **4.1.4.1 Secondary Containment System Design**

3 Several design features have been engineered into the construction of the 331-C Storage Unit as added
4 safeguards for containment of dangerous waste spills or leaks. The following subsections comment
5 briefly on each of the design features.

6 **4.1.4.1.1 System Design**

7 The facility is covered by a roof that is maintained to prevent intrusion of rainwater into areas where
8 hazardous waste is stored.

9 The base of the facility consists of a 6-inch reinforced, poured concrete slab. All exposed surfaces were
10 finished with a smooth troweled surface and painted with a chemical resistant epoxy based coating. All
11 edges and corners were sealed with a bead of sealant.

12 The concrete floors in each bay storage cell are sealed and bermed using angle iron and have containment
13 trenches at the entrances to these cells. These trenches are isolated from each other in order to prevent
14 interaction, reactions, or offsite migration of spilled materials. This provides protection even during
15 simultaneous spills.

16 The condition of the floor coating is inspected weekly per Chapter 6.0, and repairs are made as needed.
17 Immediate repairs are indicated whenever the coating is observed to have been chipped, bubbled up,
18 scraped, or otherwise damaged in a manner that would significantly impact the capability of the coating
19 to contain spilled materials. Minor nicks and small chips resulting from normal operations will be
20 repaired on a periodic basis.

21 The floors in the bay area are sealed and bermed using angle iron and have containment trenches at every
22 exit to the area to prevent offsite migration of spilled material. Drums stored in this area are also stored
23 on pallets to prevent contact with spilled material in the event of a release.

24 **4.1.4.1.2 Structural Integrity of Base**

25 The concrete was mixed in accordance with ASTM C94/C94M, and is capable of bearing the loads
26 associated with normal container storage and movement.

27 **4.1.4.1.3 Containment System Capacity**

28 Secondary containment is provided for all dangerous waste stored at the 331-C Storage Unit. Storage
29 limits for all chemicals are listed in Table 4.1 (1988 Uniform Building Code). All floors in the bay area
30 have sumps that have no drains and are covered with grating to prevent safety hazards. In addition, all
31 floors in the bay area are coated with an epoxy based coating as described in Section 4.1.4.1.1.
32 Inspection of the containment system to maintain integrity is described in Chapter 6.0. Individual
33 secondary containment systems are configured as follows:

34 **4.1.1.6.1 Acids and Oxidizers Cell.** The acids and oxidizers cell (Cell 1) is located at the northwest
35 corner of the 331-C Storage Unit bay area. The concrete floor in this storage cell is sealed and bermed
36 using angle iron and has a containment trench at the entrance. This trench is isolated from the other
37 trenches in order to prevent interaction, reactions, or offsite migration of spilled materials. This provides
38 protection even during simultaneous spills. This provides protection even during simultaneous spills. Six
39 cabinets, open shelving, and a large-container storage area are provided within the cell to allow storage

1 of various sizes of containers. The containment volume of the sump entering the cell is 55 gallons. A
2 diagram of the cell is provided in Figure 4.1.

3 **4.1.1.6.2 Poisons and Class 9 Cell.** The poisons and Class 9 cell (Cell 2) is located just south of the
4 acids and oxidizers cell along the west wall of the bay area. The concrete floor in this storage cell is
5 sealed and bermed using angle iron and has a containment trench at the entrance. This trench is isolated
6 from the other trenches in order to prevent interaction, reactions, or offsite migration of spilled materials.
7 This provides protection even during simultaneous spills. The northeast corner of the cell is used for
8 PCB storage for disposal complying with 40 CFR 761.65(b). The containment volume of the sump
9 entering the cell is 55 gallons. A diagram of this cell is provided in Figure 4.2.

10 **4.1.1.6.3 Alkaline, Washington State Criteria Waste, Organic Peroxides, and Non-Regulated**
11 **Waste Cell.** The alkaline, Washington State Criteria waste, and non-regulated waste cell (Cell 3) is
12 located south of the poisons and Class 9 cell on the west wall of the bay area. The concrete floor in this
13 storage cell is sealed and bermed using angle iron and has a containment trench at the entrance. This
14 trench is isolated from the other trenches in order to prevent interaction, reactions, or offsite migration of
15 spilled materials. This provides protection even during simultaneous spills. Four storage cabinets, three
16 sets of open shelving, and one explosion proof refrigerator, are positioned in the cell to allow storage of
17 various sizes of containers. The containment volume of the sump entering the cell is 55 gallons. A
18 diagram of this cell is provided in Figure 4.3.

19 **4.1.1.6.4 Flammable Cell.** The flammable cell (Cell 4) is located south of the alkaline, Washington
20 State Criteria waste, and non-regulated waste cell. The concrete floor in this storage cell is sealed and
21 bermed using angle iron and has a containment trench at the entrance. This trench is isolated from the
22 other trenches in order to prevent interaction, reactions, or offsite migration of spilled materials. This
23 provides protection even during simultaneous spills. The containment volume of the sump entering the
24 cell is 55 gallons. A diagram of this cell is provided in Figure 4.4.

25 Ignitable organic waste materials are stored in this cell that also exhibits the characteristics of corrosivity
26 and toxicity as well as reactivity. Eight Factory Mutual-approved flammable liquid storage cabinets are
27 utilized for storage of various classes of flammable liquids as defined by the UFC. The capacities of the
28 various cabinets are shown in Table 4.1. The following cabinets also are used for storage in this cell: one
29 for combustibles, one for aerosols, two for flammable solids, and one for overflow from one of the other
30 cabinets.

31 Total ignitable Waste Storage capacity of the 331-C Storage Unit bay, including the organics cell,
32 Ignitable drum storage area, and bay storage area is limited by the following UBC restrictions for Class B
33 occupancy:

- 34 • Class 1A flammable liquids: 120 gallons
- 35 • Class 1B flammable liquids: 240 gallons
- 36 • Class 1C flammable liquids: 360 gallons
- 37 • Maximum Class 1A, 1B, and 1C at any one time: 480 gallons
- 38 • Maximum Class 1A, 1B and 1C stored in Cell 8 self contained storage module for flammable liquids
39 is 240 gallons
- 40 • Class 2 combustible liquids: 480 gallons
- 41 • Class 3A combustible liquids: 1320 gallons
- 42 • Combustible fibers, loose: 100 cubic feet

- 1 • Combustible fibers, baled: 1000 cubic feet
- 2 • Flammable gases in any one cylinder: 3000 cubic feet
- 3 • Liquefied flammable gases: 60 gallons

4 **4.1.1.6.5. Flammable Liquids Storage Module.** The flammable liquid storage module is a
5 self-contained storage module (Cell 8) that allows additional storage space for flammable waste. The
6 flammable liquid storage module is located along the south wall, and is connected to the buildings fire
7 suppression system. The flammable liquid storage module has a 2-hour fire rated containment system so
8 that according to the UFC, an unlimited capacity is allowed. However, the flammable waste storage
9 capacity of the flammable liquid storage module is limited by the 240-gallon capacity of the module's
10 secondary containment system. No more than 240 gallons of any combination of flammable liquid
11 classes will be stored in the module. This flammable waste storage capacity is in addition to the
12 flammable storage limits for the bay area. A diagram showing the module location in the bay area is
13 included in Figure 4.5.

14 **4.1.1.6.6 Ignitable Waste Drum Storage Area.** An additional section of the bay area (Cell 8) has been
15 dedicated with two flammable drum storage cabinets used to store drum quantities of ignitable waste
16 before offsite shipment. The bay area is bordered on all sides by angle iron (3½ in. x 6 in.) bolted to the
17 floor and sealed to provide secondary containment. To further enhance containment and to allow greater
18 storage capacity, the drums stored in this area are stored in flammable liquid drum storage cabinets.

19 Maximum storage in these two cabinets is approximately four 55-gallon drums and twelve five-gallon
20 drums. A diagram showing the two flammable storage cabinets in the bay area is included in Figure 4.5.
21 Additional ignitable waste storage is provided for in Cell 4, the organics cell, and in the flammable
22 liquids storage module. All of this ignitable waste storage is provided for utilizing flammable liquid
23 storage cabinets for added safety.

24 **4.1.1.6.7 Universal and Recycling Waste Storage Area.** A section of the bay (Cell 6) has been
25 dedicated to storage of drum quantities of universal and recycling waste before shipment. The area is
26 approximately 20 ft. x 5 ft. in size dependent on the amounts in storage. All material in this area is stored
27 in DOT approved containers and is stored on pallets to prevent contact with spilled waste in the event of
28 an incident. A diagram of this area is included in Figure 4.5.

29 **4.1.1.6.8 Bay Storage Area.** The bay storage area is itself a secondary containment area for loading,
30 unloading, and the storage of dangerous waste. All floors in the bay area are bordered on all sides by
31 angle iron (3½ in. x 6 in.) bolted to the floor and sealed with an epoxy based coating to provide
32 secondary containment. Sump locations are indicated in Figure 4.5.

33 Due to space limitations in the individual cells, and for ease of mechanical handling, the bay floor is
34 typically used for storage of chemicals in drums.

35 The bay floor is also used to store lab packs and bulked waste containers before offsite shipment to
36 permitted treatment, disposal, or recycling facilities. Generally, only corrosives, oxidizers, toxic organic
37 solvent mixtures (typically halogenated solvents), antifreeze mixtures, contaminated water which is toxic
38 dangerous waste, nonliquid waste, Class 9, or state-only dangerous waste materials are stored in the bay
39 storage area.

40 If incompatible wastes are stored in the bay area, they are kept in individual secondary containment
41 systems if in bulk drum form. If the waste is in labpack form, it will meet WAC 173-303-161,
42 *Overpacked containers (labpacks)*, requirements before being stored in the bay area. The DOT approved
43 outer container serves as the secondary containment system for segregation in case of simultaneous
44 accidental spillage.

1 The bay storage is governed by the building occupancy limits of Table 4.2, which includes the inventory
2 of the individual storage cells previously described. In order to provide additional separation from
3 spilled liquids and for ease of handling, all drums stored on the bay floor are stored on pallets. A
4 diagram of the bay area is provided in Figure 4.5.

5 **4.1.1.6.9 Explosives Storage Area.** Due to UBC restrictions, waste classified as explosive by DOT
6 regulations are stored in a 3 ft. x 3 ft. x 3 ft. explosives magazine, with an 8 cubic foot interior, outside
7 Cell 4. The magazine is constructed of steel and certified to have been fabricated per Institute of Makers
8 of Explosives (IME) SLP22, type 2-day box requirements. No more than 1 pound of explosives is stored
9 in the magazine at one time. The location of the magazine is indicated in Figure 4.5.

10 **4.1.4.1.4 Control of Run-On**

11 The 331-C Storage Unit was designed to eliminate the likelihood of on-site, or for that matter, off-site
12 migration via run-on and run-off. The building and the covered area adjacent to the building have been
13 constructed upon a foundation and the surrounding soil sloped away so that precipitation cannot cause
14 either run-on or run-off problems.

15 **4.1.4.2 Removal of Liquids from Containment System**

16 Upon discovery of liquid accumulation in the containment resulting from a spill or other release, the
17 Building Emergency Director (BED) must be contacted in accordance with the 331-C Storage Unit
18 Building Emergency Procedure (BEP) Chapter 7.0. The BED may determine that the contingency plan
19 should be implemented. If the incident is minor, and the BED approves, removal of the liquids will
20 commence immediately following a safety evaluation. Appropriate protective clothing and respiratory
21 protection will be worn during removal activities; a PNNL industrial hygienist may be contacted to
22 determine appropriate personnel protection requirements and any other safety requirements that may be
23 required, such as chemical testing or air monitoring. In addition, ventilation of the spill-impacted area
24 may be performed if determined to be safe and if appropriate monitoring of the air discharge(s) is
25 performed.

26 Spills are normally contained either within the storage cabinet, within the cell, or within a secondary
27 containment trench or berm as described in Section 4.1.4.1.1. In any case, spilled material will be
28 recovered to the extent possible by pumping recovered liquids with a pump made of non-reactive
29 materials (either steel or PVC) to intact containers selected in accordance with the container criteria in
30 WAC 173-303-190. Non-recoverable liquids will be absorbed with an appropriate absorbent (after
31 appropriate chemical reaction to neutralize reactivity in the case of reactive waste, or neutralization in the
32 case of corrosive materials); refer to Table 6.2 for a list of available materials for this purpose. The
33 absorbent material will then be recovered and placed in a container selected in accordance with
34 Section 4.1.1.1, using non-sparking shovels in the case of ignitable waste. The floor, cabinets and any
35 other impacted containers may be cleaned with dry rags, soap and water, or a compatible solvent if
36 necessary to remove external contamination. Contaminated rags and other cleanup material will be
37 disposed of in an appropriate manner.

38 **4.1.5 Demonstration that Containment Is Not Required Because Containers Do Not Contain** 39 **Free Liquids, Wastes That Exhibit Ignitability or Reactivity, or Wastes Designated F020-** 40 **F023, F026, or F027**

41 This section is not applicable to the 331-C Storage Unit because the storage area is used to store
42 containers both with and without free liquids. The 331-C Storage Unit does not meet the conditions for
43 reduced requirements for storing only containers without free liquid; therefore, the facility is subject to
44 the full requirements for containment.

1 **4.1.6 Prevention of Reaction of Ignitable, Reactive, and Incompatible Waste in Containers**

2 The following sections provide information on the management of ignitable, reactive, and incompatible
3 waste in containers. Additional information on this subject can be found in Chapter 6.0, Section 6.5.

4 **4.1.6.1 Management of Certain Reactive Wastes in Containers**

5 Wastes described in WAC 173-303-070(7)(vi), (vii), and/or (viii) (explosive type wastes) will be stored
6 in the explosives magazine described in Section 4.1.4.1.3 above. This magazine meets the Uniform Fire
7 Code requirements for storage of such materials.

8 **4.1.6.2 Management of Ignitable or Reactive Waste in Containers**

9 Ignitable and reactive wastes not described in Section 4.2.1 are stored in compliance with Uniform Fire
10 Code Division II regulations for Container and Portable Tank Storage Inside Buildings (International
11 Conference of Building Officials 1988). Containers of ignitable and reactive waste are stored in
12 individual flammable storage cabinets within the storage cells.

13 **4.1.6.3 Design of Areas to Manage Incompatible Wastes**

14 Chapter 6.0, Section 6.5.2 describes guidelines used at the 331-C Storage Unit to determine the
15 compatibility of dangerous waste so that incompatible wastes are not stored together. Chemical waste
16 stored in the 331-C Storage Unit are separated by compatibility, chemical makeup, and hazard class and
17 stored in areas having appropriate secondary containment, as described in Section 4.1.1.6.

18 As shown in Figures 4.1 through 4.5, each storage area has individual storage configurations; secondary
19 containment structures are provided to verify that incompatible materials will not commingle if spilled.
20 Further segregation is provided by chemical storage cabinets located throughout the facility in various
21 areas as shown in Figures 4.1 through 4.5. Cabinet types are noted in those figures and capacities are
22 described in Table 4.1. Incompatible wastes are never placed in the same container, or in unwashed
23 containers that previously held incompatible waste.

24 Compliance with WAC 173-303-395(1)(b) is assured utilizing the reactivity groupings given in *A Method*
25 *for Determining the Compatibility of Hazardous Waste* (EPA 1980). Using this system and following the
26 guidelines for handling ignitable or reactive waste and mixing of incompatible waste, as described in
27 Section 6.5.2, fulfills the requirements of WAC 173-303-395(1)(c).

28 **4.2 TANK SYSTEMS**

29 This section is not applicable to the 331-C Storage Unit because waste is not managed in tanks.

30 **4.3 WASTE PILES**

31 This section is not applicable to the 331-C Storage Unit because waste is not managed in waste piles.

32 **4.4 SURFACE IMPOUNDMENTS**

33 This section is not applicable to the 331-C Storage Unit because waste is not placed in surface
34 impoundments.

1 **4.5 INCINERATORS**

2 This section is not applicable to the 331-C Storage Unit because waste is not incinerated.

3 **4.6 LANDFILLS**

4 This section is not applicable to the 331-C Storage Unit because waste is not placed in landfills.

5 **4.7 LAND TREATMENT**

6 This section is not applicable to the 331-C Storage Unit because waste is not treated in land treatment
7 units.

8 **4.8 AIR EMISSIONS CONTROL**

9 **4.8.1 Process Vents**

10 This section is not applicable to the 331-C Storage Unit, as no equipment subject to WAC 173-303-690
11 (Subpart AA requirements) is located or utilized at the unit.

12 **4.8.2 Equipment Leaks**

13 This section is not applicable to the 331-C Storage Unit, as no equipment subject to WAC 173-303-691
14 (Subpart BB requirements) is located or utilized at the unit. Note that pumps or other equipment may
15 contact hazardous waste with an organic concentration of at least ten percent by weight for less than 300
16 hours per calendar year. If so, the equipment will be identified as required by WAC 173-303-691(1)(f).

17 **4.8.3 Tanks and Containers**

18 **4.8.3.1 Applicability of Subpart CC Standards**

19 The requirements of WAC 173-303-692 (Subpart CC standards) apply to dangerous waste stored at the
20 331-C Storage Unit unless one or more of the exceptions given at WAC 173-303-692(1)(b) apply.

21 **4.8.3.2 Tank Systems and Container Areas – Demonstrating Compliance**

22 Compliance with the Subpart CC standards is maintained at the 331-C Storage Unit by utilizing DOT-
23 specification containers for storage, when the container has a design capacity greater than 0.1 m³
24 (26.4 gallons). Containers greater than 0.46 m³ (121 gallons) are not typically utilized at 331-C, and if
25 they are, they would be used only for materials with low vapor pressures. Hence Level 1 container
26 standards are the only standards that must be met.

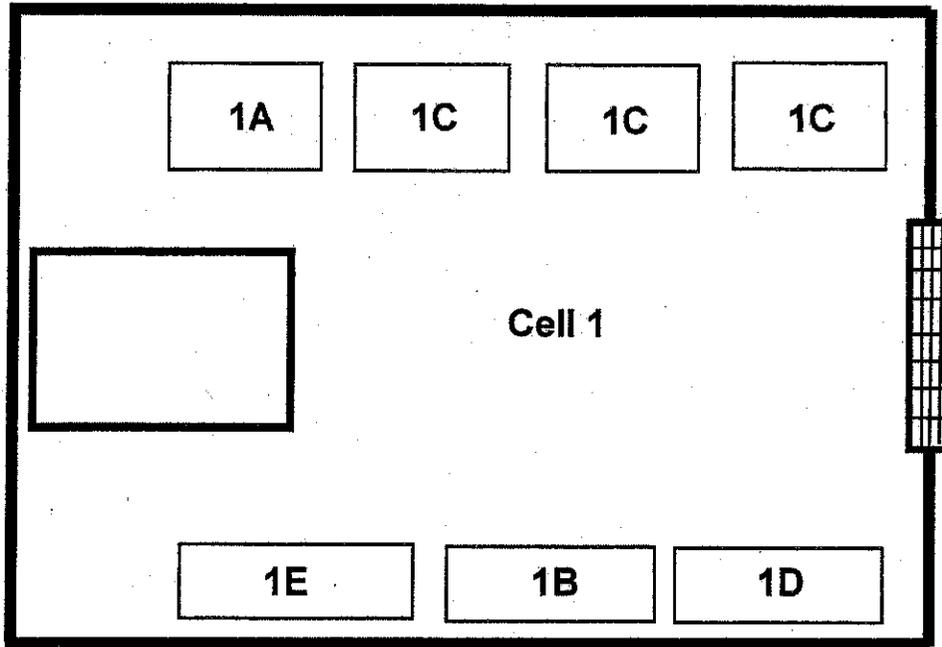
27 To meet the Level 1 standards, the following standards are observed:

- 28 • Opening hazardous waste containers only occurs when adding or removing waste, or for necessary
29 inspection or sampling, after which the container is promptly re-closed.
- 30 • Inspection of the closure of hazardous waste containers is checked prior to loading for shipment to
31 331-C as part of the waste acceptance process (Section 3.2.2).
- 32 • Any waste container greater than 0.1 m³ capacity stored longer than one year is re-inspected at least
33 once every 12 months to check the container for deterioration or damage. Any deterioration or
34 damage is documented and promptly repaired in accordance with 40 CFR 264.1086(c)(4)(iii).

- 1 Determination that containers with capacity greater than 0.46 m³ (121 gallons) are not in "light material
- 2 service" is provided through the acceptance criteria in the 331-C waste analysis plan (Section 3.2).

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Figure 4.1. Acids and Oxidizers Cell

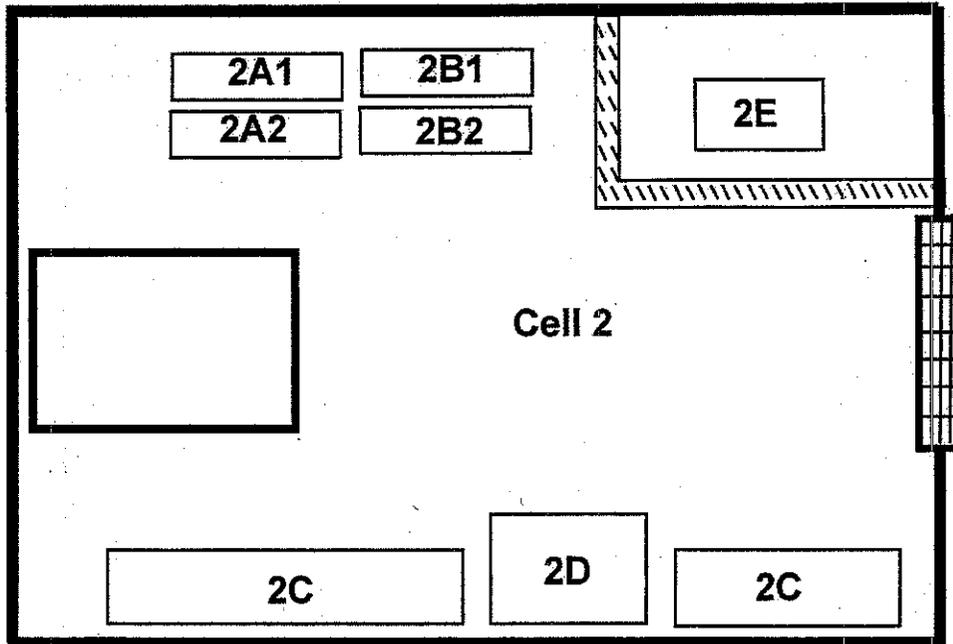


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6 **Legend**

- 7 1A Liquid Oxidizers (Medium Cabinet)
- 8 1B Solid Oxidizers (Small Cabinet)
- 9 1C Inorganic Acids (Medium Cabinet)
- 10 1D Organic Acids (corrosive) (Small Cabinet)
- 11 1E Mercury/Corrosive Solids (Small Shelf)
- 12  Epoxy coated angle iron
- 13  Secondary Containment Trench
- 14  Drum and Carboy Storage Area

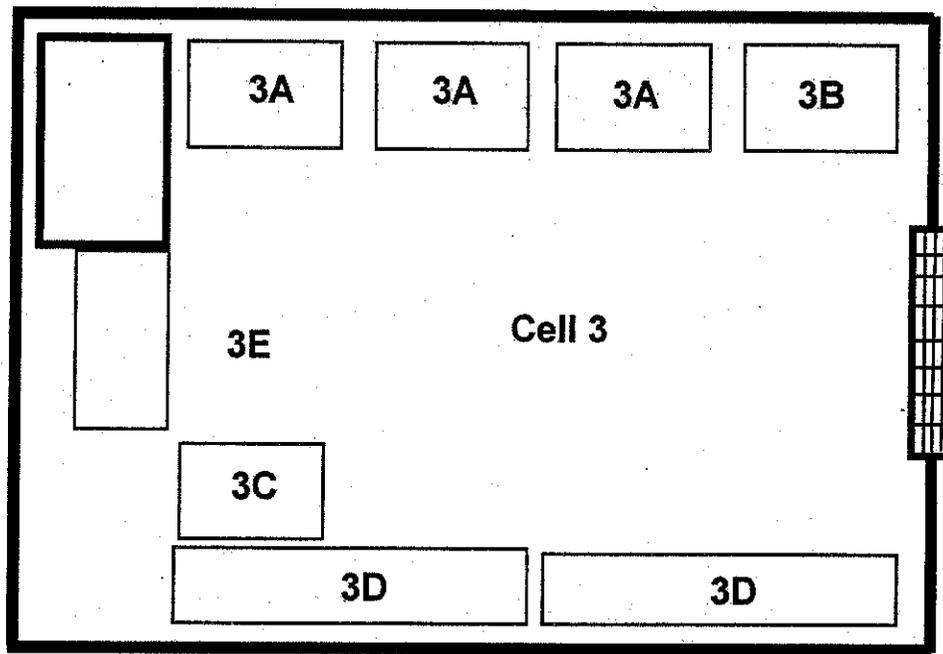
Figure 4.2. Poisons and Class 9 Cell



Legend

- 2A1 Poisons, Acidic (P.G.II and P.G.III) (Small Cabinet)
- 2A2 Poisons, Neutral/Basic (P.G.II and P.G.III) (Small Cabinet)
- 2B1 Poisons, Neutral/Basic (P.G.I) (Small Cabinet)
- 2B2 Poisons, Acidic (P.G.I) (Small Cabinet)
- 2C Class 9 (nonreactive) (Large and Small Shelf)
- 2D Class 9 (reactives) (Large Cabinet)
- 2E PCB's
- Epoxy coated angle iron
- ▨ Secondary Containment Trench
- Drum and Carboy Storage Area

1 **Figure 4.3. Alkaline, Washington State Criteria Waste, Organic Peroxides, and Non-Regulated**
2 **Waste Cell**
3

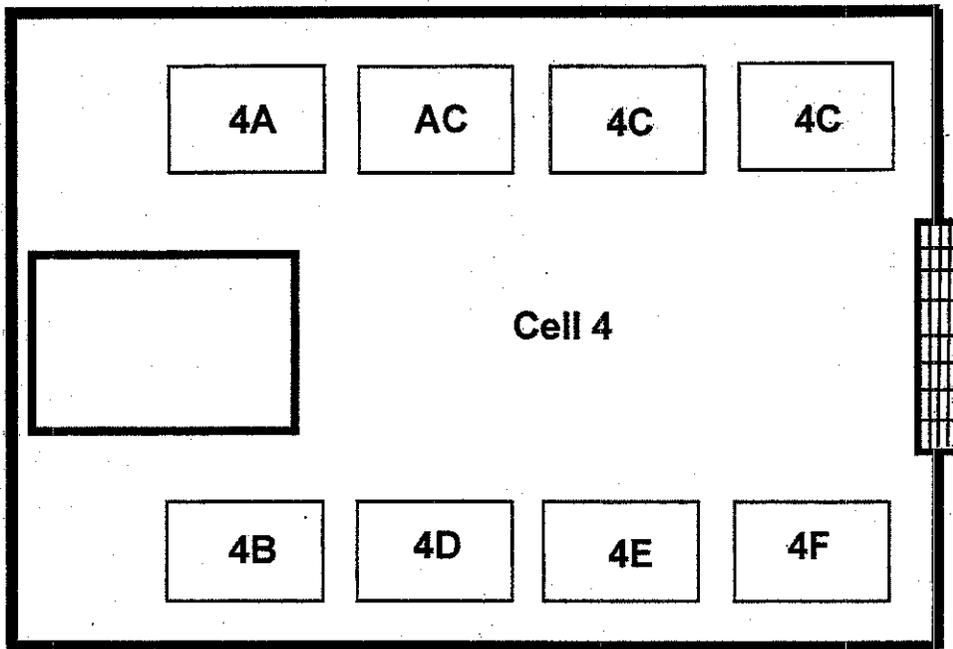


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6 **Legend**

- 7 3A Alkaline (liquids and solids) (Medium Cabinet)
- 8 3B Alkaline/Oxidizers (Medium Cabinet)
- 9 3C Organic Peroxides and temperature sensitive (refrigerator)
- 10 3D Washington State Criteria Waste (2 Large Shelves)
- 11 3E Non-Regulated Liquids/Solids (Small Shelf)

- 12  Epoxy coated angle iron
- 13  Secondary Containment Trench
- 14  Drum and Carboy Storage Area

Figure 4.4. Organics Cell

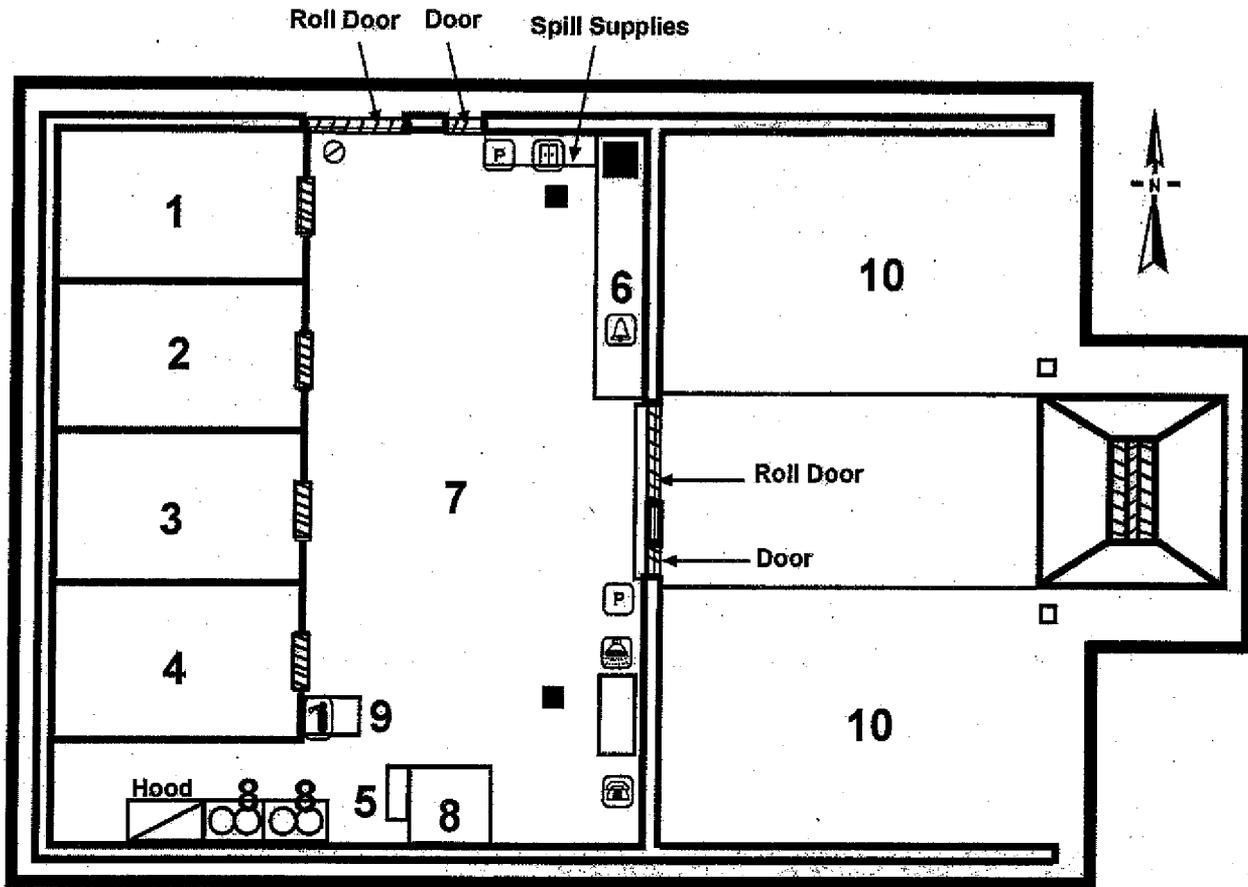


Legend

- 4A Combustible Liquids (Large Cabinet)
- 4B Aerosols (Large Cabinet)
- 4C Flammable Liquids (Large Cabinet)
- 4D Flammable Solids (Dangerous When Wet) (Large Cabinet)
- 4E Flammable Solids (with water Spontaneously Combustible) (Large Cabinet)
- 4F Floating Cabinet (Large Cabinet)
- Epoxy coated angle iron
- ▤ Secondary Containment Trench
- Drum and Carboy Storage Area

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Figure 4.5. Bay Storage Area



Legend					
	Emergency Equipment Cabinet		Phone		Fire Alarm Pull Box
	Safety Shower/Eyewash		Fire Alarm Bell		10 Lb. ABC Fire Extinguisher
	Emergency Lights		Collection Sump		15 Lb. Or Larger Class D Fire Extinguisher
	HVAC Shutoff		TSD Boundary		

3
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Legend

1. Acids, Oxidizers
2. Poisons, Class 9
3. Alkaline, WSDW, Organic Peroxides
4. Organics Flammable and Compressed Aerosols
5. Compressed gases
6. Universal/Recycling Storage Area
7. Class 9, WSDW, Non-flammable and compatible waste
8. Flammable Storage
9. Explosive Magazine
10. Outdoor Non-regulated Drum Storage

Table 4.1. Storage Devices Used at the 331-C Storage Unit

Storage Device	Typical Use	Approximate External Dimensions (in.)	Approximate Capacity (gal/ft3.)
Small Cabinet	Storage of containers (5 gallons or less capacity)	43w x 18d x 65h	50 max
Medium Cabinet	Storage of containers (18.93 liter [5 gallons] or less capacity)	31w x 31d x 65h	60 max
Large Cabinet	Storage of containers (5 gallons or less capacity)	34w x 34d x 65h	80 max
Small Drum Cabinet	Storage of drums (5 to 55 gallons capacity)	34w x 34d x 65h	65 max
Large Drum Cabinet	Storage of drums (5 to 55 gallons capacity)	59w x 34d x 65h	130 max
Small Shelving	Storage of containers (5 gallons or less capacity)	47w x 18d x 62h	65 max
Large Shelving	Storage of containers (5 gallons or less capacity)	72w x 18d x 62h	100 max
Flammable Storage Module	18.93 liter [5 gallons] to 208.18 liter [55 gallons] capacity	78w x 73d x 100h	240 max
Refrigerator/Freezer	Storage of containers of organic peroxides and other temperature sensitive waste	34w x 29d x 67h	25 Cu.Ft.
Explosives Magazine	Storage of containers containing DOT classified explosives	36w x 36d x 36h	8 Cu.Ft.

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Table 4.2. Building Occupancy limits.

BASIC QUANTITIES PER CONTROL AREA¹

When two units are given values within parentheses are in cubic feet (Cu.Ft.) or pounds (Lbs.)

CONDITION		STORAGE ²			USE2-CLOSED SYSTEMS			USE2-OPEN SYSTEMS		
MATERIAL	CLAS S	Solid Lbs. (Cu.Ft.)	Liquid Gallons (Lbs.)	Gas (Cu.Ft.)	Solid Lbs. (Cu.Ft.)	Liquid Gallons (Lbs.)	Gas (Cu.Ft.)	Solid Lbs. (Cu.Ft.)	Liquid Gallons (Lbs.)	Gas (Cu.Ft.)
1.1 Combustible liquid ³	II	-	1204 5	-	-	1204	-	-	304	-
	III-A	-	3304 5	-	-	3304	-	-	804	-
	III-B	-	13,200 ⁶ 6	-	-	13,200 ⁶	-	-	3,300 ⁶	-
1.2 Combustible dust lbs./1000 Cu.Ft.		17	-	-	17	-	-	17	-	-
1.3 Combustible fiber (loose)		(100)	-	-	(100)	-	-	(20)	-	-
	(baled)	(1,000)	-	-	(1,000)	-	-	(200)	-	-
1.4 Cryogenic, flammable or oxidizing			45	-	-	45	-	-	10	-
2.1 Explosives		15 8 9	(1)5 8 9	-	¼ 8	(¼)8	-	¼ 8	(¼)8	-
3.1 Flammable solid		1254 5	-	-	254	-	-	254	-	-
3.2 Flammable gas (gaseous)		-	-	7504 5	-	-	7504 5	-	-	-
	(liquefied)	-	154 5	-	-	-	-	-	-	-
3.1 Flammable liquid ³		-	304 5	-	-	304	-	-	104	-
		-	604 5	-	-	604	-	-	154	-
		-	904 5	-	-	904	-	-	204	-
Combination I-A, I-B, I-C		-	1204 5 10	-	-	1204 10	-	-	304 10	-
4.1 Organic peroxide, unclassified detonable		15 8	(1)5 8	-	¼ 8	(¼)8	-	¼ 8	(¼)8	-
4.2 Organic peroxide	I	54 5	(5)4 5	-	(1)4	(1)4	-	14	14	-
	II	504 5	(50)4 5	-	504	(50)4 5	-	104	(10)4	-
	III	1254 5	(125)4 5	-	1254	(125)4 5	-	254	(25)4	-
	IV	500	(500)	-	500 ⁴	(500)	-	100	(100)	-
	V	N.L.	N.L.	-	N.L.	N.L.	-	N.L.	N.L.	-
4.3 Oxidizer	4	15 8	(1)5 8	-	¼ 8	(¼) 8	-	¼ 8	(¼)8	-
	3	104 5	(10)4 5	-	24	(2)4	-	24	(2)4	-
	2	2504 5	(250)4 5	-	2504	(250)4	-	504	(50)4	-

¹ Control area is a space bounded by not less than a one-hour fire-resistive occupancy separation within which the exempted amounts of hazardous materials may be stored dispensed, handled or used. The number of control areas within a building used for retail and wholesale stores shall not exceed two. The number of control areas in buildings with other uses shall not exceed four.

² The aggregate quantity in use and storage shall not exceed the quantity listed for storage.

³ The quantities of alcoholic beverages in retail sales uses are unlimited provided the liquids are packaged in individual containers not exceeding four liters. The quantities of medicines, foodstuffs and cosmetics containing not more than 50 percent of volume of water-miscible liquids and with the remainder of the solutions not being flammable in retail sales or storage occupancies are unlimited when packaged in individual containers not exceeding four liters.

⁴ Quantities may be increased 100 percent in sprinklered buildings. When Footnote 5 also applies, the increase for both footnotes may be applied.

⁵ Quantities may be increased 100 percent when stored in approved storage cabinets or safety cans as specified in the fire code. When Footnote 4 also applies, the increase for both may be applied.

⁶ The quantities permitted in a sprinklered building are not limited.

⁷ A dust explosion potential is considered to exist if 1 pound or more of combustible dust per 1,000 cubic feet of volume is normally in suspension or on horizontal surfaces inside buildings or equipment and which could be put into suspension by an accident, sudden force or small explosion.

⁸ Permitted in sprinklered buildings only. None is allowed in unsprinklered buildings.

⁹ One pound of black sporting powder and 20 pounds of smokeless powder are permitted in sprinklered or unsprinklered buildings.

¹⁰ Containing not more than the exempt amounts of Class I-A, Class I-B, and Class I-C flammable liquids.

BASIC QUANTITIES PER CONTROL AREA1

When two units are given values within parentheses are in cubic feet (Cu.Ft.) or pounds (Lbs.)

CONDITION		STORAGE ²			USE2-CLOSED SYSTEMS			USE2-OPEN SYSTEMS		
MATERIAL	CLAS S	Solid Lbs. (Cu.Ft.)	Liquid Gallons (Lbs.)	Gas (Cu.Ft.)	Solid Lbs. (Cu.Ft.)	Liquid Gallons (Lbs.)	Gas (Cu.Ft.)	Solid Lbs. (Cu.Ft.)	Liquid Gallons (Lbs.)	Gas (Cu.Ft.)
4.1 Oxidizer—Gas (gaseous)	1	1,000 4 5	(1,00)4 5	—	1,000 4	(1,00)4 4	—	200 4	(20)4	—
		—	—	1,500 4 5	—	—	1,500 4 5	—	—	—
(liquefied)		—	15 4 5	—	—	15 4 5	—	—	—	—
5.1 Pyrophoric		45 8	(4)5 8	505 8	18	(1)8	105 8	0	0	0
6.1 Unstable (reactive)	4	15 8	(1)5 8	105 8	¼ 8	(¼)8	24 5	¼ 8	(¼)8	0
	3	54 5	(5)4 5	504 5	14	(1)4	104 5	14	14	0
	2	504 5	(50)4 5	2504 5	504	(50)4	2504 5	104	(10)4	0
7.1 Water (reactive)	1	125 4 5	(125)4 5	750 4 5	125 4	(125)4	750 4 5	25 4	(25)4	0
	3	54 5	(5)4 5	—	54	(5)4	—	14	(1)4	—
	2	504 5	(50)4 5	—	504	(50)4	—	104	(10)4	—
	1	1255 6	(125)5 6	—	1256	(125)5 6	—	25 6	(25) 6	—
1. Corrosives	5,000	500	6506	5,000	500	6505	1,000	100	100	—
2. Highly Toxic ¹	1	(1)	202	1	(1)	207	¼	(¼)	(¼)	—
3. Irritants	5,000	500	6506	5,000	500	6505	1,000	100	—	—
4. Sensitizers	5,000	500	6506	5,000	500	6505	1,000	100	—	—
5. Other Health Hazards	5,000	500	6506	5,000	500	6505	1,000	100	—	—

¹ For special provisions, see the Fire Code.

² Permitted only when stored in approved exhausted gas cabinets, exhausted enclosures or fume hoods.

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1	Chapter 5.0	Groundwater Monitoring
2	5.0 GROUNDWATER MONITORING.....	5.1

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1	Chapter 8.0	Personnel Training	
2	8.0	PERSONNEL TRAINING.....	8.1
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6	8.1.2	Continuing Training	8.2
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8.0 PERSONNEL TRAINING

This chapter discusses personnel training requirements based on WAC 173-303 and the Hanford Facility RCRA Permit, WA7890008967 (Permit). In accordance with WAC 173-303-806(4)(a)(xii), the *Hanford Facility Dangerous Waste Part B Permit Application* must contain two items: (1) "an outline of both the introductory and continuing training programs by owners or operators to prepare persons to operate or maintain the TSD facility in a safe manner as required to demonstrate compliance with WAC 173-303-330" and (2) "a brief description of how training will be designed to meet actual job tasks in accordance with the requirements in WAC 173-303-330(1)(d)." Permit Condition II.C (Personnel Training) contains training requirements applicable to Hanford Facility personnel and non-Facility personnel.

Compliance with these requirements at the 331-C Storage Unit is demonstrated by information contained in DOE/RL-91-28, Chapter 8.0 and this chapter.

8.1 OUTLINE OF INTRODUCTORY AND CONTINUING TRAINING PROGRAMS

The introductory and continuing training programs are designed to prepare personnel to manage and maintain the TSD unit in a safe, effective, and environmentally sound manner. In addition to preparing personnel to manage and maintain TSD units under normal conditions, the training programs verify that personnel are prepared to respond in a prompt and effective manner should abnormal or emergency conditions occur. Emergency response training is consistent with the description of actions contained in Chapter 7.0, Building Emergency Procedure. The introductory and continuing training programs contain the following objectives:

- Teach Hanford Facility personnel to perform their duties in a way that ensures the Hanford Facility's compliance with WAC 173-303
- Teach Hanford Facility personnel dangerous waste management procedures (including implementation of the contingency plan) relevant to the job titles/positions in which they are employed, and
- Verify that Hanford Facility personnel can respond effectively to emergencies.

8.1.1 Introductory Training

Introductory training includes general Hanford Facility training and TSD unit-specific training. General Hanford Facility training is described in DOE/RL-91-28, Chapter 8.0, and is provided in accordance with the Permit Condition II.C.2. TSD unit-specific training is provided to Hanford Facility personnel allowing those personnel to work unescorted, and in some cases is required for escorted access. Hanford Facility personnel cannot perform a task for which they are not properly trained, except to gain required experience while under the direct supervision of a supervisor or coworker who is properly trained. Hanford Facility personnel must be trained within 6 months after their employment at or assignment to the Hanford Facility, or to a new job title/position at the Hanford Facility, whichever is later.

General Hanford Facility training: Refer to description in DOE/RL-91-28, Chapter 8.0.

Contingency Plan training: Hanford Facility personnel receive training on applicable portions of the *Hanford Emergency Management Plan* (DOE/RL-94-02) in general Hanford Facility training. In addition, Hanford Facility personnel receive training on the content of the description of actions contained in contingency plan documentation in Chapter 7.0 to be able to effectively respond to emergencies.

1 Emergency Coordinator training: Hanford Facility personnel who perform emergency coordinator duties
2 in WAC 173-303-360 (e.g., Building Emergency Director) in the Hanford Incident Command System
3 receive training on implementation of the contingency plan and fulfilling the position within the Hanford
4 Incident Command System. These Hanford Facility personnel must also become thoroughly familiar
5 with applicable contingency plan documentation, operations, activities, location, and properties of all
6 waste handled, location of all records, and the unit/building layout.

7 Operations training: Dangerous waste management operations training (e.g., waste designation training,
8 shippers training) will be determined on a unit-by-unit basis and shall consider the type of waste
9 management unit (e.g., container management unit) and the type of activities performed at the waste
10 management unit (e.g., sampling). For example, training provided for management of dangerous waste in
11 containers will be different than the training provided for management of dangerous waste in a tank
12 system. Common training required for compliance within similar waste management units can be
13 provided in general training and supplemented at the TSD unit. Training provided for TSD unit-specific
14 operations will be identified in the training plan documentation based on (1) whether a general training
15 course exists, (2) the training needs to verify waste management unit compliance with WAC 173-303, and
16 (3) training commitments agreed to with Ecology.

17 **8.1.2 Continuing Training**

18 Continuing training meets the requirements for WAC 173-303-330(1)(b) and includes general Hanford
19 Facility training and TSD unit-specific training.

20 General Hanford Facility training: Annual refresher training is provided for general Hanford Facility
21 training. Refer to description in DOE/RL-91-28, Chapter 8.0.

22 Contingency plan training: Annual refresher training is provided for contingency plan training. Refer to
23 description above in Section 8.1.1.

24 Emergency coordinator training: Annual refresher training is provided for emergency coordinator
25 training. Refer to description above in Section 8.1.1.

26 Operations training: Refresher training occurs on many frequencies (i.e., annual, every other year, and
27 every 3 years) for operations training. When justified, some training will not contain a refresher course
28 and will be identified as a one-time only training course. The TSD unit-specific training plan
29 documentation will specify the frequency for each training course. Refer to description above in Section
30 8.1.1.

31 **8.2 DESCRIPTION OF TRAINING DESIGN**

32 Proper design of a training program verifies that personnel who perform duties on the Hanford Facility
33 related to WAC 173-303-330(1)(d) are trained to perform their duties in compliance with WAC 173-303.
34 Actual job tasks, referred to as duties, are used to determine training requirements. The first step taken to
35 verify that Hanford Facility personnel have received the proper training is to determine and document the
36 waste management duties by job title/position. The second step compares waste management duties to
37 the general waste management unit training curriculum. If the general waste management unit training
38 curriculum does not address the waste management duties, the training curriculum is supplemented and/or
39 on-the-job training is provided. The third step summarizes the content of a training course necessary to
40 verify that the training provided to each job title/position addresses associated waste management duties.
41 The last step is to assign training curriculum to Hanford Facility personnel based on the previous
42 evaluation. The training plan documentation contains this process.

- 1 Waste management duties include those specified in Section 8.1 as well as those contained in
2 WAC 173-303-330(1)(d). Training elements of WAC 173-303-330(1)(d) applicable to the 331-C Storage
3 Unit operations include the following:
- 4 • Procedures for using, inspecting, repairing, and replacing emergency and monitoring equipment
 - 5 • Communications or alarm systems
 - 6 • Response to fires or explosions
 - 7 • Shutdown of operations.
- 8 Hanford Facility personnel who perform these duties receive training pertaining to their duties. The
9 training plan documentation described in Section 8.3 contains specific information regarding the types of
10 training Hanford Facility personnel receive based on the outline in Section 8.1.

11 8.3 DESCRIPTION OF TRAINING PLAN

12 In accordance with Permit Condition ILC.3, the unit-specific portion of the *Hanford Facility Dangerous*
13 *Waste Permit Application* must contain a description of the training plan. Training plan documentation is
14 maintained outside of the *Hanford Facility Dangerous Waste Part B Permit Application* and the Permit.
15 Therefore, changes made to the training plan documentation are not subject to the Permit modification
16 process. However, the training plan documentation is prepared to comply with WAC 173-303-330(2).

17 Documentation prepared to meet the training plan consists of hard copy and/or electronic media as
18 provided by Permit Condition ILC.1. The training plan documentation consists of one or more
19 documents and/or a training database with all the components identified in the core document.

20 A description of how training plan documentation meets the three items in WAC 173-303-330(2) is as
21 follows:

- 22 1. -330(2)(a): "The job title, job description, and name of the employee filling each job. The job
23 description must include requisite skills, education, other qualifications, and duties for each position."

24 Description: The specific Hanford Facility personnel job title/position is correlated to the waste
25 management duties. Waste management duties relating to WAC 173-303 are correlated to training
26 courses to verify that training is properly assigned.

27 Only names of Hanford Facility personnel who carry out job duties relating to TSD unit waste
28 management operations at the 331-C Storage Unit are maintained. Names are maintained within the
29 training plan documentation. A list of Hanford Facility personnel assigned to the 331-C Storage Unit
30 is available upon request.

31 Information on requisite skills, education, and other qualifications for job title/positions are addressed
32 by providing a reference where this information is maintained (e.g., human resources). Specific
33 information concerning job title, requisite skills, education, and other qualifications for personnel can
34 be provided upon request.

- 35 2. -330(2)(b): "A written description of the type and amount of both introductory and continuing
36 training required for each position."

37 Description: In addition to the outline provided in Section 8.1, training courses developed to comply
38 with the introductory and continuing training programs are identified and described in the training
39 plan documentation. The type and amount of training is specified in the training plan documentation
40 as shown in Table 8.1.

3. -330(2)(c): "Records documenting that personnel have received and completed the training required by this section. The Department may require, on a case-by-case basis, that training records include employee initials or signature to verify that training was received."

Description: Training records are maintained consistent with DOE/RL-91-28, Chapter 8.0.

Table 8.1. 331-C Storage Unit Training Matrix

Attachment 33, General Information Portion, Chapter 8.0 Training (DOE/RL-91-28) Category	Training Category ^(a)				
	General Hanford Facility Training	Contingency Plan Training	Emergency Coordinator Training	Operations Training	
331-C Storage Unit	Orientation Program	Building Emergency Plan	Building Emergency Director Training	Advanced Waste Management Training	Container Management
Staff Position					
Technical Group Lead	X	X	X ¹	X	X
Hazardous Waste Operations Staff	X	X	X ^(b)	X	X

¹ Required for any staff that has been assigned the duties of Building Emergency Director or alternate.

(a) Refer to the Environmental Management Services Department Training Plan for a complete description of coursework in each training category.

(b) Required for any staff that has been assigned the duties of Building Emergency Director or alternate.

1	Chapter 9.0	Exposure Information Report
2	9.0 EXPOSURE INFORMATION REPORT	9.1

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1 **9.0 EXPOSURE INFORMATION REPORT**

- 2 The 331-C Storage Unit does not store, treat, or dispose of hazardous waste in a surface impoundment or
3 landfill as defined in 40 CFR 270.10. Exposure information report requirements under RCRA,
4 Section 3019, therefore are not applicable.

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Class 3 Modification:
December 2005

WA7890008967, Operating Unit 15
331-C Storage Unit

1	Chapter 10.0	Waste Minimization
2	10.0	WASTE MINIMIZATION10.1

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1	Chapter 11.0	Closure and Financial Assurance
2	11.0	CLOSURE AND FINANCIAL ASSURANCE.....11.1
3		
4	11.1	CLOSURE PLAN/FINANCIAL ASSURANCE FOR CLOSURE.....11.1
5	11.1.1	Closure Performance Standard.....11.1
6	11.1.2	Closure Activities.....11.1
7	11.1.3	Maximum Waste Inventory.....11.4
8	11.1.4	Closure of Waste Piles, Surface Impoundments, Incinerators, Land Treatment Facilities, and
9		Miscellaneous Units.....11.4
10	11.1.5	Closure of Landfill Units.....11.4
11	11.1.6	Schedule for Closure.....11.5
12	11.1.7	Extension for Closure Time.....11.5
13	11.1.8	Closure Cost Estimate.....11.5
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20	11.4	LIABILITY REQUIREMENTS.....11.5
21	Tables	
22	Table 11.1.	Summary of Closure Activities.....11.6
23	Table 11.2.	Detailed Schedule of Closure.....11.6

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11.0 CLOSURE AND FINANCIAL ASSURANCE

This chapter is submitted in accordance with the requirements of WAC 173-303-806(4)(a)(xiii) to demonstrate that DOE-RL has developed a plan to ensure safe closure of the 331-C Storage Unit. In accordance with WAC 173-303-610, copies of the closure plan and all revisions will be maintained at 331-C Storage Unit until certification of closure completeness has been submitted and accepted by Ecology. A post-closure plan is not required because 331-C Storage Unit is not a disposal unit and all dangerous waste and dangerous waste residues will be removed at the time of closure.

11.1 CLOSURE PLAN/FINANCIAL ASSURANCE FOR CLOSURE

This plan presents the activities required for final closure of the 331-C Storage Unit at its maximum extent of operation. This closure plan is expected to be updated at closure to reflect integration with the River Corridor cleanup project. The wastes included in the scope of this closure plan are those regulated as dangerous waste. Partial closure will not be conducted. Closure activities are presented in sufficient detail such that the closure process is understandable and a closure schedule can be developed.

11.1.1 Closure Performance Standard

The following sections identify performance standards for clean closure of the 331-C Storage Unit.

11.1.1.1 Performance Standards for Soil/Environmental Media

Closure of the 331-C Storage Unit will be conducted in a manner that meets the clean closure performance standards of WAC 173-303-610(2)(a). The performance standards will be met by removing all dangerous waste inventory and by removing or decontaminating all structures and soil to clean closure removal or decontamination standards.

Due to the scope of operations of the 331-C Storage Unit and the preventive measures utilized during operations, releases from the unit that result in soil contamination are not expected. Should such releases occur during the operating life of the 331-C Storage Unit, this closure plan will be revised to identify contaminants of concern and numeric cleanup levels prescribed by WAC 173-303-610(2)(b)(i).

11.1.1.2 Structure Removal or Decontamination Standards

The clean closure removal and decontamination standards for structures, equipment, bases, liners, etc. have been established in accordance with WAC 173-303-610(2)(b)(ii).

The clean closure standard for structures is a visually verifiable standard established in accordance with WAC 173-303-610(2)(b)(ii). The standard is the absence of obvious stains or residues that would indicate potential dangerous waste contamination. Surfaces must be free of indications of potential dangerous waste, except for residual waste stains consisting of light shadows, slight streaks, or minor discoloration. The standard will be achieved through decontamination of all indoor and outdoor storage and loading area floor and pad surfaces. The standard will be verified by visual inspections performed and documented as described in Section 11.1.2.3.2. Only storage and loading area floor surfaces and some miscellaneous components that will remain after closure are expected to have the potential to have been contaminated by storage operations and these areas will be required to meet this standard.

11.1.2 Closure Activities

This plan identifies the steps necessary to perform final closure of the unit in order to meet the closure performance standards given above. Closure activities to achieve and verify clean closure of structures and soil (i.e., storage and loading area pads, floors, trenches, and sumps) are as follows.

- Remove all dangerous waste inventory
- Remove potentially contaminated storage building equipment and components for reuse

- 1 • Decontaminate storage building components and storage building and loading area floors, trenches,
2 and sumps
- 3 • Visually inspect the decontaminated surfaces for achievement of the clean closure standard
- 4 • Sample any contaminated soil and compare results to clean closure standards for soil (not currently
5 expected to be necessary)
- 6 • Certify that closure activities were completed in accordance with the approved closure plan.

7 **11.1.2.1 Maximum Extent of Operations**

8 The 331-C Storage Unit is used to store a variety of different research-related waste and is expected to be
9 fully operational until closure (i.e. no partial closures of storage areas are expected). The maximum
10 inventory of waste in storage at any time will be constrained by three factors:

- 11 • The total amount of dangerous waste in storage at 331-C Storage Unit at any time will not exceed the
12 design capacity of 20,000 gallons (it is typically 2,000 to 5,000 gallons during normal operations)
- 13 • The total amount of any particular dangerous waste in storage during any given year will not exceed
14 the amounts given in the Part A Form for 331-C Storage Unit (Chapter 1.0)
- 15 • The total amount of dangerous waste by hazard class in storage at any one time will not exceed
16 Uniform Building Code Class B Hazardous Material Quantity Restrictions (Table 4.1).

17 **11.1.2.2 Removing Dangerous Wastes**

18 Closure activities will be initiated by removal of the dangerous waste inventory present at 331-C Storage
19 Unit at the time of closure. Inventory removal procedures will be identical to the waste handling,
20 packaging, and manifesting activities associated with normal operation of the unit. All dangerous waste
21 present will be placed into proper containers according to currently accepted waste handling procedures.
22 To the extent possible, chemicals will be labpacked or bulked into larger containers. If wastes are bulked,
23 containers will be emptied in compliance with WAC 173-303-160 so that they are not dangerous waste.
24 Labpack containers will be packaged in compliance with the requirements of WAC 173-303-161. All
25 containers of dangerous waste will be manifested, and custody transferred to a dangerous waste
26 transporter having a proper dangerous waste identification number. Waste will be transported to a
27 permitted dangerous waste facility for treatment or disposal.

28 **11.1.2.3 Decontaminating Structures, Equipment and Soil**

29 The following sections describe decontamination and inspection activities for structures and
30 miscellaneous building components that will remain after closure.

31 **11.1.2.3.1 Waste Handling Equipment**

32 No equipment will remain after closure that would require decontamination to meet clean closure levels.
33 All portable waste handling equipment used for handling containers (e.g., barrel tongs, forklift truck) will
34 been decontaminated in the same manner as described in Section 11.1.2.3.3 below, removed and
35 redeployed to other Hanford or PNNL operations.

36 **11.1.2.3.2 Examination of Structure Surfaces**

37 After waste inventory removal, but prior to beginning decontamination procedures, the unit surfaces will
38 be inspected to identify any cracks or other openings through which dangerous waste or decontamination
39 fluids might migrate. Any such cracks or openings will be documented in the 331-C operating record and
40 investigated to determine if releases of dangerous waste or dangerous waste constituents have occurred.
41 If the potential exists for releases to have occurred, sampling may be required, in which case this closure
42 plan will be amended to provide for the sampling and analysis process (Section 11.1.2.4). If no potential
43 for releases is found, the cracks or openings will be repaired to prevent release of decontamination fluids
44 and decontamination will proceed as described below.

1 **11.1.2.3.3 Decontamination of Structures**

2 Storage cell floors, sumps, trenches, and outdoor loading areas will be cleaned by hand using mops, rags,
3 brushes, water, and appropriate nonregulated detergent or by mechanical means using a power scrubber or
4 high-pressure/low-volume steam or water spray. Cleaning will be conducted so as to minimize the
5 quantity of rinsates generated. Rinsates (if any) will be collected in trenches or sumps, pumped from the
6 sumps into appropriate containers, and the pump triple rinsed. Rinsate collection locations will be
7 cleaned and inspected last. Decontamination will be documented on a decontamination and inspection
8 checklist similar. All decontamination waste will be designated in accordance with WAC 173-303 and
9 managed accordingly. Decontamination waste requiring management as dangerous waste will be
10 managed in a 90-day accumulation area established for the purpose and/or transported to a permitted TSD
11 unit for storage pending disposal.

12 The cleaned surfaces will be visually inspected for achievement of the clean closure standard described in
13 Section 11.1.1.2 of no obvious stains or residues indicating potential dangerous waste contamination.
14 The visual inspection will be documented on the checklist used to document the decontamination. When
15 the visual standard is met, the structure will be considered clean. Copies of the completed visual
16 inspection checklist(s) will be placed in the 331-C Storage Unit Operating Record.

17 **11.1.2.3.4 Decontamination and Inspection of Miscellaneous Building Components**

18 Grating over trenches of the indoor areas and the outdoor loading pads will be cleaned by high-
19 pressure/low-volume steam or water spray, or will be cleaned by hand using rags, brushes, water, and an
20 appropriate cleaner, if necessary. Rinsate and decontamination materials will be collected, designated, and
21 managed accordingly. Decontamination will be documented on a Decontamination and inspection
22 checklist. The grating will be inspected for achievement of the clean closure standard and the inspection
23 documented on the checklist used to document the decontamination.

24 **11.1.2.4 Sampling and Analysis to Identify Extent of Decontamination/Removal and to Verify**
25 **Achievement of Closure Standard**

26 No sampling and analysis of environmental samples (soil or other materials) is expected to be required
27 due to the preventive measures in place during the operating life of the 331-C Storage Unit. If
28 environmental media are contaminated during operation of the 331-C Storage Unit, this plan will be
29 revised to identify methods for sampling and analysis of such media. Decontamination of structures will
30 be visually determined in accordance with the standards given in Section 11.1.1.2. The results of this
31 examination will be documented on a decontamination and inspection checklist.

32 **11.1.2.5 Other Activities**

33 Within 60 days of completion of the final closure activities described in this plan, a certification of
34 closure will be submitted to Ecology. This certification will indicate that the 331-C Storage Unit has been
35 closed as described in this plan and that the closure performance standard given in Section 11.1 has been
36 met. The certification will be submitted by registered mail and will be signed by the Permittees and an
37 independent Professional Engineer registered in the State of Washington as described below.

38 The Permittees will certify with the following document or a document similar to it:

39 *I, (name), an authorized representative of the U.S. Department of Energy-Richland Operations*
40 *Office located at the Federal Building, 825 Jadwin Avenue, Richland, Washington, hereby state*
41 *and certify that the 331-C Storage Unit at the 300 Area, to the best of my knowledge and belief,*
42 *has been closed in accordance with the attached approved closure plan, and that the closure*
43 *was completed on (date).*

44 (Signature and date)

1 The Permittees will engage an independent Professional Engineer registered in the State of Washington to
2 inspect closure activities, to verify that closure activities are being conducted according to this plan, and
3 to certify that closure has been performed in accordance with this plan.

4 The engineer will inspect the 331-C Storage Unit at least weekly while closure activities are being
5 performed. During these inspections the engineer will observe closure activities to determine whether
6 they are being performed according to this plan. Inspections will include, but not be limited to:

- 7 • Inspection of dangerous waste containment structures and systems to determine whether releases of
8 waste to the environment have occurred
- 9 • Verification that the dangerous waste inventory has been removed within 90 days of receipt of the last
10 waste shipment
- 11 • Inspection of manifests and Operating Record to verify that these waste were disposed of in
12 compliance with WAC 173-303
- 13 • Inspection of decontamination operations to verify that they are being performed using the procedures
14 described in this plan
- 15 • Inspections of the Operating Record to verify that samples of liquid decontamination waste were
16 collected and analyzed using the procedures described in this plan
- 17 • Inspection of the Operating Record to verify that decontamination waste were properly designated in
18 compliance with WAC 173-303-070 and properly disposed.

19 Inspections by the engineer will be documented in a bound notebook. Notations will include the date and
20 time of the inspection, the areas inspected, the activities inspected, applicable closure plan requirements
21 inspected, status of observed activities with respect to plan requirements, corrective actions required
22 status of past corrective actions, and name and signature of inspector. This inspection notebook will be
23 made available to Ecology upon request.

24 Upon completion of closure according to the plan, the Permittees will require the engineer to sign the
25 following document or a document similar to it:

26 *I, (name), a certified Professional Engineer, hereby certify, to the best of my knowledge and*
27 *belief, that I have made visual inspection(s) of the 331-C Storage Unit at the 300 Area and that*
28 *closure of the aforementioned unit has been performed in accordance with the attached*
29 *approved closure plan.*

30 (Signature, date, state Professional Engineer license number, business address, and phone number.)

31 No other activities are expected to be necessary for clean closure.

32 **11.1.3 Maximum Waste Inventory**

33 The maximum waste inventory for the 331-C Storage Unit will be up to 20,000 gallons, as described in
34 Chapter 1.0. The inventory will consist of the waste types described in Chapter 3.0.

35 **11.1.4 Closure of Waste Piles, Surface Impoundments, Incinerators, Land Treatment Facilities,** 36 **and Miscellaneous Units**

37 This section is not applicable to the 331-C Storage Unit because wastes are not managed in these types of
38 units.

39 **11.1.5 Closure of Landfill Units**

40 This section is not applicable to the 331-C Storage Unit because it does not contain any landfill units and
41 will not be closed as a dangerous waste landfill unit.

1. **11.1.6 Schedule for Closure**

2 When closure begins, the inventory of dangerous waste will be removed within 90 days from receipt of
3 the final volume of waste. All closure activities will be completed within 180 days of receipt of the final
4 volume of waste. Ecology will be notified by DOE-RL at least 45 days before the final closure activities
5 are begun. Closure activities are summarized in Table 11.1. A detailed schedule of closure activities is
6 provided in Table 11.2.

7 **11.1.7 Extension for Closure Time**

8 The inventory of dangerous waste will be removed from the 331-C Storage Unit within 90 days of receipt
9 of the last volume of waste. The closure activities described in this plan will be completed within
10 180 days of receipt of the final volume of waste. No extension to the time frame for initiation and
11 completion of closure is currently expected to be necessary. Extensions to the time frames for closure
12 would only be necessary if unexpected conditions were encountered during closure of the unit. If it
13 becomes apparent that all waste cannot be removed within 90 days, Ecology will be so notified at least
14 30 days prior to expiration of the 90-day period. This notification will demonstrate why more than
15 90 days is required for removal of the waste and will demonstrate that steps have been taken to prevent
16 threats to human health and the environment and that the unit is in compliance with applicable permit
17 standards. If it becomes apparent that closure cannot be completed within 180 days after approval of this
18 plan, Ecology will be so notified at least 30 days prior to expiration of the 180-day period. This
19 notification will demonstrate why more than 180 days is required for closure and will demonstrate that
20 steps have been taken to prevent threats to human health and the environment and that the unit is in
21 compliance with applicable permit standards.

22 **11.1.8 Closure Cost Estimate**

23 The Hanford Facility is not required to comply with the financial assurance requirements in
24 WAC 173-303-620 based upon Permit Condition II.H.3.

25 **11.1.9 Financial Assurance Mechanism for Closure**

26 The Hanford Facility is not required to comply with the financial assurance requirements in
27 WAC 173-303-620 based upon Permit Condition II.H.3.

28 **11.2 NOTICE IN DEED**

29 This section is not applicable because the 331-C Storage Unit is not to be closed as a dangerous waste
30 disposal unit.

31 **11.3 POSTCLOSURE PLAN**

32 This section and subsequent subsections are not applicable because the 331-C Storage Unit is expected to
33 be clean closed, not as a land-based unit.

34 **11.4 LIABILITY REQUIREMENTS**

35 The Hanford Facility is not required to comply with the financial assurance requirements in
36 WAC 173-303-620 based upon Permit Condition II.H.3.

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Table 11.1. Summary of Closure Activities

Closure Activity Description	Expected Duration
Receipt of final volume of dangerous waste	N/A
Notify EPA and Ecology that closure will begin	30 days
Remove waste inventory – package all dangerous waste, manifest, and transfer to permitted facility for further storage, treatment and/or disposal	45 days
Decontaminate structural surfaces and equipment.	55 days
Analyze decontamination waste to determine proper methods of treatment/disposal	25 days
Dispose of decontamination waste based on results of waste analysis	20 days

2

Table 11.2. Detailed Schedule of Closure

Action	Schedule
Pre-Closure Activities	
Date of receipt of last volume of waste	Day 0
Notify EPA and Ecology	Day 30
Closure Activities	
Removal of Waste Inventory	Day 75
Removal of equipment and components	Day 95
Decontamination of Unit	Day 130
Management of Decontamination Waste	
Waste Analysis	Day 155
Waste Disposal	Day 175
Other Activities	
Certification of Closure to Ecology	Day 215

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1	Chapter 12.0	Reporting and Recordkeeping
2	12.0	REPORTING AND RECORDKEEPING12.1

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12.0 REPORTING AND RECORDKEEPING

- 2 Reports and records applicable to the 331-C Storage Unit are summarized in the DOE/RL-91-28,
3 Chapter 12.0, Table 12.1.

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1	Chapter 13.0	Other Relevant Laws
2	13.0 OTHER RELEVANT LAWS	13.1

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1	Chapter 14.0	Certification
2	14.0 CERTIFICATION.....	14.1

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14.0 CERTIFICATION

2 The following certification, required by Washington Administrative Code 173-303-810(13), for all
3 applications and reports submitted to Ecology is hereby included:

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

11 *Roby D. Enge*

12 Co-Operator

13 Roby D. Enge, Director

14 Environmental, Safety, Health and Quality

15 Pacific Northwest National Laboratory

11/30/05

Date

16 *Keith A. Klein*

17 Owner/Operator

18 Keith A. Klein, Manager

19 Richland Operations Office

20 U.S. Department of Energy

12/15/05

Date

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1	Chapter 15.0	References
2	15.0 REFERENCES.....	15.1
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15.0 REFERENCES

- 2 40 CFR 264. *Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and*
3 *Disposal Facilities*, Code of Federal Regulations. U.S. Environmental Protection Agency,
4 Washington D.C.
- 5 40 CFR 268. *Land Disposal Restrictions*. Code of Federal Regulations. U.S. Environmental Protection
6 Agency, Washington D.C.
- 7 49 CFR 173, *Shippers-General Requirements for Shipments and Packagings*, Code of Federal
8 Regulations. U.S. Department of Transportation, Washington, D.C.
- 9 42 U.S.C. §6901 et seq, Resource Conservation and Recovery Act of 1976, as amended.
- 10 DOE-RL-91-28, *Hanford Facility Dangerous Waste Permit Application, General Information Portion,*
11 *Revision 7*, U.S. Department of Energy, Richland Operations Office, Richland, Washington, as
12 amended.
- 13 Ecology, Publication 95-402. *Dangerous Waste Permit Application Requirements for Facilities which*
14 *Store and/or Treat Dangerous Wastes in Tank Systems and/or Containers*. Washington State
15 Department of Ecology, Olympia, Washington, 1996.
- 16 Ecology, Publication 04-05-015, *Hanford Facility Resource Conservation and Recovery Act Permit,*
17 *WA7890008967*, Revision 8, as amended.
- 18 FEMA, 1982, *FIRM Flood Insurance Rate Map. Benton County, Washington (Unincorporated Areas),*
19 *Community-Panel Number 530237 0470 B*, Federal Emergency Management Agency,
20 Washington D.C.
- 21 ICBO, 1988 Uniform Fire Code, Article 7, Division II, International Conference of Building Officials,
22 Whittier, California.
- 23 SW-846, *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods*, U.S. Environmental
24 Protection Agency, Cincinnati, Ohio, as amended.
- 25 WAC 173-303. *Dangerous Waste Regulations*. Publication No. 92-91, as amended. Washington
26 Administrative Code, Washington State Department of Ecology, Olympia, Washington.
- 27 WAC 173-303-090 & 100, *Chemical Testing Methods for Designating Dangerous Waste.*
28 *Publication 97-407*, as amended. Washington State Department of Ecology, Olympia, Washington.
- 29 RCW 70.105, *Hazardous Waste Management*, as amended, Revised Code of Washington, Olympia,
30 Washington.

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**STATE ENVIRONMENTAL POLICY ACT (SEPA)
ENVIRONMENTAL CHECKLIST FORMS**

for

**331-C Storage Unit
Hanford Facility RCRA Permit Modification**

**Revision 0
November 2005**

Pacific Northwest National Laboratory

**Washington Administrative Code
Environmental Checklist Forms
[WAC 197-11-960]**

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STATE ENVIRONMENTAL POLICY ACT ENVIRONMENTAL CHECKLIST

A. BACKGROUND

1. **Name of proposed project, if applicable:** 331-C Storage Unit Hanford RCRA Permit Modification

2. **Name of applicants:** Owner and operator: U.S. Department of Energy, Richland Operations Office (DOE-RL). Co-operator: Pacific Northwest National Laboratory.

3. **Address and phone number of applicants and contact persons:**

Owner and Operator

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

Co-operator

Pacific Northwest National Laboratory
P.O. Box 999
Richland, Washington 99352

Contact:

Briant Charbonneau, Manager, Environmental
Services Division
(509) 373-6137

Contact:

Roby Enge, Director
Environment, Safety, Health and Quality
(509) 376-1187

4. **Date checklist prepared:** November 10, 2005

5. **Agency requesting the checklist:** Washington Department of Ecology

6. **Proposed timing or schedule: (including phasing, if applicable):**

Submittal of Permit Modification and SEPA Checklist: December 15, 2005

Public Comment Period: December 15, 2005 – February 14, 2006

Begin Waste Storage: March 1, 2006 (presumes Ecology approval of temporary authorization request)

Final Permit Approval: December 31, 2006

7. **Do you have any plans for future additions, expansion, or further activity related to or connected with this proposal? If yes, explain.**

No.

8. **List any environmental information you know about that has been prepared, or will be prepared, directly related to this proposal.**

A project-specific categorical exclusion document has been prepared pursuant to NEPA.

Documentation also includes a cultural resources review and an ecological compliance review, both of which found no potential impacts. A complete Part B permit application has been prepared and will be submitted to Ecology on or before December 15, 2005.

9. **Do you know whether applications are pending for government approvals of other proposals directly affecting the property covered by your proposal? If yes, explain.**

None known.

1 **10. List any government approvals or permits that will be needed for your proposal, if known.**

2 Ecology approval of a Class 3 modification of the Hanford Facility RCRA Permit is needed to
3 authorize waste operations at 331-C. Interim authorization is expected to be granted through a
4 temporary authorization pursuant to WAC 173-303-830(4), but permanent authorization is made
5 through a permit modification.

6 **11. Give brief, complete description of your proposal, including the proposed uses and the size of**
7 **the project and site. There are several questions later in this checklist that ask you to describe**
8 **certain aspects of your proposal. You do not need to repeat those answers on this page.**

9 The project involves grant of final permit status (Part B) for a hazardous waste storage unit located in
10 the 331-C building located in the 300 Area of the Hanford Site. The 331-C building is a one-story
11 metal building constructed around 1970. The storage unit comprises approximately 2500 square feet.
12 It is being modified to provide replacement capability for safe storage of hazardous wastes. Wastes
13 from PNNL facilities are brought to 331-C for consolidation into truckload quantities for offsite
14 recycling, treatment, and/or disposal. No treatment or disposal of waste will occur at 331-C.

15 331-C is being retrofitted and permitted to take the place of the 305-B Storage Facility, a permitted
16 unit which PNNL has operated since 1989. The 305-B building is located in the north end of the 300
17 Area of the Hanford Site, where DOE-RL is currently focusing an effort to accelerate the 300 Area
18 cleanup. PNNL has been directed to leave the 305-B building to facilitate the expedited cleanup.

19 Granting of a RCRA permit and continued PNNL operation of a waste storage unit has significant
20 benefits, including:

- 21 • Encouragement and facilitation of waste reduction, reuse and recycling;
- 22 • Promotion of safer handling of dangerous wastes through use of specially trained personnel;
- 23 • Reduce risk of environmental release of dangerous waste constituents through use of specialized
24 facilities and equipment; and
- 25 • Provide significant cost savings to the Federal government through preparation of proper, timely
26 and economical shipments to licensed offsite recycling, treatment or disposal facilities.

27 **12. Location of the proposal. Give sufficient information for a person to understand the precise**
28 **location of your proposed project, including a street address, if any, and section, township, and**
29 **range, if known. If a proposal would occur over a range of area, provide the range or**
30 **boundaries of the site(s). Provide a legal description, site plan, vicinity map, and topographic**
31 **map, if reasonably available. While you should submit any plans required by the agency, you**
32 **are not required to duplicate maps or detailed plans submitted with any permit applications**
33 **related to this checklist.**

34 The 331-C building is located just south of the 331 Building, in the southeast portion of the 300 Area.
35 Detailed maps are provided in the Part B permit application documentation provided to Ecology.

36 **B. ENVIRONMENTAL ELEMENTS**

37 **1. Earth**

- 38 a. **General description of the site (circle one): Flat, rolling, hilly, steep slopes, mountainous,**
39 **other _____.**

40 Flat.

- 41 b. **What is the steepest slope on the site (approximate percent slope)?**

42 The steepest slope is approximately 1 percent.

- 1 **c. What general types of soils are found on the site? (for example, clay, sandy gravel, peat,**
 2 **muck)? If you know the classification of agricultural soils, specify them and note any prime**
 3 **farmland.**

4 The soil around the site consists of sand and sandy gravel. Much of the surrounding area has been
 5 paved with asphalt or concrete. No farming is allowed on the Hanford Site.

- 6 **d. Are there surface indications or history of unstable soils in the immediate vicinity? If so,**
 7 **describe.**

8 No unstable soil conditions are known to exist.

- 9 **e. Describe the purpose, type, and approximate quantities of any filling or grading proposed.**
 10 **Indicate source of fill.**

11 A small amount of earth (less than 20 cubic yards) is being removed in order to create a level
 12 loading area for larger tractor-trailer vehicles used to ship consolidated waste loads. The removed
 13 soil will be reused on the Hanford Site.

- 14 **f. Could erosion occur as a result of clearing, construction, or use? If so, generally describe.**

15 Earth moving activities will be minimal and will be performed to minimize erosion and dust
 16 creation.

- 17 **g. About what percent of the site will be covered with impervious surfaces after project**
 18 **construction (for example, asphalt or buildings)?**

19 No new impervious surfaces will be constructed; the loading area is being constructed in an area
 20 currently paved. The 331-C building covers about 33% of the immediate area; about 15% is
 21 paved; and the balance is graveled.

- 22 **h. Proposed measures to reduce or control erosion, or other impacts to the earth, if any:**

23 Normal dust abatement techniques during digging such as watering.

24 **2. Air**

- 25 **a. What types of emissions to the air would result from the proposal (i.e., dust, automobile,**
 26 **odors, industrial wood smoke) during construction and when the project is completed? If**
 27 **any, generally describe and give approximate quantities, if known.**

28 Minimal quantities of dust and equipment exhaust will be emitted during construction activities.

29 When operational, the unit will receive vehicle traffic at the rate of 1-5 vehicles per day. Vehicles
 30 may be autos, pickups or heavy duty vehicles up to and including truck/trailer combinations.
 31 Vehicles received are operated by unit staff, by generators of waste, or by licensed hazardous
 32 waste transporters transferring combined shipments to offsite dangerous waste management
 33 facilities.

34 The unit also has local exhaust systems for a sampling hood and several waste storage cabinets.
 35 Emissions from these systems are minimal due to care taken during normal operations. Waste
 36 containers are kept closed except when adding or removing waste.

- 37 **b. Are there any offsite sources of emissions or odors that may affect your proposal? If so,**
 38 **generally describe.**

39 None.

- 40 **c. Proposed measures to reduce or control emissions or other impacts to the air, if any?**

41 None proposed.

1 **3. Water**

2 **A. Surface**

- 3 **1) Is there any surface water body on or in the immediate vicinity of the site (including**
 4 **year-round and seasonal streams, saltwater, lakes, ponds, wetlands)? If yes, describe**
 5 **type and provide names. If appropriate, state what stream or river it flows into.**

6 Yes. The Columbia River flows past the eastern boundary of the 300 Area. The 331-C
 7 Storage Unit is located approximately 500 feet from the shoreline of the river, which is a
 8 "shoreline of state-wide significance" per the Shoreline Management Act, but is not located
 9 within the wetland area, i.e. within 200 feet of the high-water mark.

- 10 **2) Will the project require any work over, in, or adjacent to (within 200 feet) the**
 11 **described waters? If yes, please describe and attach available plans.**

12 No

- 13 **3) Estimate the amount of fill and dredge material that would be placed in or removed**
 14 **from surface water or wetlands and indicate the area of the site that would be affected.**
 15 **Indicate the source of fill material.**

16 None

- 17 **4) Will the proposal require surface water withdrawals or diversions? Give general**
 18 **description, purpose, and approximate quantities if known.**

19 No

- 20 **5) Does the proposal lie within a 100-year floodplain? If so, note location on the site plan.**

21 No

- 22 **6) Does the proposal involve any discharges of waste materials to surface waters? If so,**
 23 **describe the type of waste and anticipated volume of discharge.**

24 No

25 **C. Ground**

- 26 **1) Will ground water be withdrawn, or will water be discharged to ground water? Give**
 27 **general description, purpose, and approximate quantities if known.**

28 No

- 29 **2) Describe waste material that will be discharged into the ground from septic tanks or**
 30 **other sources, if any (for example: Domestic sewage; industrial, containing the**
 31 **following chemicals...; agricultural; etc.). Describe the general size of the system, the**
 32 **number of such systems, the number of houses to be served (if applicable), or the**
 33 **number of animals or humans the system(s) are expected to serve.**

34 No water or wastes will be discharged to the ground. The 331-C Building is connected to the
 35 300 Area sanitary sewer for domestic sewage services. The unit is equipped with secondary
 36 containment systems to prevent the release of stored materials to soil or groundwater.

37 **C. Water Run-off (including storm water)**

- 38 **1) Describe the source of run-off (including storm water) and method of collection and**
 39 **disposal, if any (include quantities, if known). Where will this water flow? Will this**
 40 **water flow into other waters? If so, describe.**

41 This project will not increase or decrease the amount of stormwater or other runoff from the
 42 331-C building or the 300 Area generally. Runoff from the 300 Area is generally absorbed

1 into the soil and/or evaporates from paved areas. The 331-C unit has control mechanisms
2 (secondary containment systems) to prevent contact of stormwater with wastes stored inside.

3 **2) Could waste materials enter ground or surface waters? If so, generally describe.**

4 No; the unit uses engineered structures to prevent releases of wastes into internal or external
5 drainage systems or soil.

6 **D. Proposed measures to reduce or control surface, ground, and run-off water impacts, if any:**

7 None

8 **4. Plants**

9 **a. Check or circle the types of vegetation found on the site.**

10 deciduous tree: alder, maple, aspen, other

11 evergreen tree: fir, cedar, pine, other

12 shrubs

13 grass

14 pasture

15 crop or grain

16 wet soil plants: cattail, buttercup, bulrush, skunk cabbage,

17 other

18 water plants: water lily, eelgrass, milfoil, other

19 other types of vegetation

20 No vegetation exists in the immediate area of the 331-C Storage Unit.

21 **b. What kind and amount of vegetation will be removed or altered?**

22 None

23 **c. List threatened or endangered species known to be on or near the site.**

24 None known

1 d. Proposed landscaping, use of native plants, or other measures to preserve or enhance
2 vegetation on the site, if any:

3 None

4 **5. Animals**

5 a. Circle any birds and animals which have been observed on or near the site or are known to
6 be on or near the site:

7 birds: hawk, heron, eagle, songbirds, other: _____

8 mammals: deer, bear, elk, beaver, other: _____

9 fish: bass, salmon, trout, herring, shellfish, other: _____

10 Birds commonly seen in the 300 Area include sparrows and other small birds as well as gulls, crows,
11 and pigeons. Mammals are generally limited to rabbits and squirrels. Fish are found in the Columbia
12 River 500 feet east of the 331-C unit.

13 b. List any threatened or endangered species known to be on or near the site.

14 None known in the 300 Area

15 c. Is the site part of a migration route? If so, explain.

16 Yes. The 300 Area lies within a migration route for some birds. The region bounding the Columbia
17 River is used as a resting place for Pacific Flyway waterfowl and shore birds during migration.

18 d. Proposed measures to preserve or enhance wildlife, if any:

19 None

20 **6. Energy and Natural Resources**

21 a. What kinds of energy (electric, natural gas, oil, wood stove, solar) will be used to meet the
22 completed project's energy needs? Describe whether it will be used for heating,
23 manufacturing, etc.

24 Electricity: Heating, cooling, lighting, and ventilation of inhabited spaces. Fans are used for
25 artificial ventilation of some areas (see 2a of this checklist). Recharge of battery-powered forklift.

26 Oil: Fuel and lubricants for vehicles operated by unit staff. Lubricants for equipment such as
27 forklifts, drum dollies, and storage cabinet doors.

28 b. Would your project affect the potential use of solar energy by adjacent properties? If so,
29 generally describe.

30 No

31 c. What kinds of energy conservation features are included in the plans of this proposal? List
32 other proposed measures to reduce or control energy impacts, if any:

33 None

1 **7. Environmental Health**

- 2 **a. Are there any environmental health hazards, including exposure to toxic chemicals, risk of**
 3 **fire and explosion, spill, or hazardous waste, that could occur as a result of this proposal? If**
 4 **so, describe.**

5 This proposal is to move PNNL's existing hazardous waste operations from the 305-B building to
 6 the 331-C building. Operation to RCRA standards is expected to reduce the hazards described
 7 above.

8 Any operation dealing with the handling and storage of dangerous wastes entails some risk. In
 9 order to reduce the risk to acceptable levels, the 331-C Unit uses detailed procedures, engineered
 10 structures, personal protective equipment, training, and contingency planning. These provisions
 11 are detailed in the Part B permit application.

12 **1) Describe special emergency services that might be required.**

13 Hanford Patrol and Benton County Sheriff (police), Hanford Fire Department, medical
 14 personnel (through AdvanceMed Hanford), and ambulance service (through Hanford Fire
 15 Department) are available at all times to assist in any emergency situation at the unit. A spill
 16 response team is also available on site. Mutual aid agreements and Memoranda of
 17 Understanding are in place between DOE-RL and many local agencies to provide backup
 18 services. Notification of all of these services is available through PNNL's single point of
 19 contact (375-2400) at any time.

20 **2) Proposed measures to reduce or control environmental health hazards, if any:**

21 Risk reduction measures utilized at the unit are described in the Part B permit application.

22 **b. Noise**

- 23 **1) What type of noise exists in the area which may affect your project (for example:**
 24 **traffic, equipment, operation, other)?**

25 None

- 26 **2) What types and levels of noise would be created by or associated with the project on a**
 27 **short-term or a long-term basis (for example: traffic, construction, operation, other)?**
 28 **Indicate what hours noise would come from the site.**

29 The only noise associated with unit operations come from operation of vehicles delivering and
 30 picking up wastes, operation of the roll-up doors to receive these vehicles, and operation of the
 31 building HVAC and specialized ventilation systems. Vehicle traffic is generally less than five
 32 per day. Operation of hoods and cabinet ventilation is generally continuous. Normal
 33 operating hours are generally 7:00 AM to 4:30 PM. Any noise outside these hours would
 34 come from ventilation system operations.

- 35 **3) Proposed measures to reduce or control noise impacts, if any:**

36 None

1 **8. Land and Shoreline Use**

2 **a. What is the current use of the site and adjacent properties?**

3 The 331-C building is currently used to store equipment and materials. Adjacent 300 Area
4 properties under PNNL control are used for research and development and support activities.
5 Many 300 Area facilities are inactive and awaiting remediation.

6 **b. Has the site been used for agriculture? If so, describe.**

7 No portion of the Hanford Site has been used for production of food crops since the U.S.
8 Government acquired it in 1943.

9 **c. Describe any structures on the site.**

10 The 331-C building is described in the Part B permit application submitted to Ecology. It is a one-
11 story metal building constructed around 1970. Adjacent buildings are of similar construction and
12 vintage except for the 331 building, which is a three-story concrete and masonry structure.

13 **d. Will any structures be demolished? If so, what?**

14 No

15 **e. What is the current zoning classification of the site?**

16 The 300 Area is not zoned. It is identified as "industrial" in the DOE-RL land use plan.

17 **f. What is the current comprehensive plan designation of the site?**

18 The 300 Area is identified as "industrial use" by separate plans prepared by DOE-RL and Benton
19 County. The City of Richland has identified potential future residential use for parts of the 300
20 Area and industrial for other parts.

21 **g. If applicable, what is the current shoreline master program designation of the site?**

22 Not applicable

23 **h. Has any part of the site been classified as an "environmentally sensitive" area? If so,
24 specify.**

25 No part of the 300 Area has been classified as "environmentally sensitive".

26 **i. Approximately how many people would reside or work in the completed project?**

27 No one will reside at the unit. Approximately six staff members will work at the unit.

28 **j. Approximately how many people would the completed project displace?**

29 None

30 **k. Proposed measures to avoid or reduce displacement impacts, if any:**

31 None

32 **l. Proposed measures to ensure the proposal is compatible with existing and projected land
33 uses and plans, if any:**

34 The project has been reviewed and approved by DOE-RL, owner and operator of the unit and the
35 site. The project is fully compatible with and supports other 300 Area research operations, which
36 have been active since 1943.

1 **9. Housing**

2 **a. Approximately how many units would be provided, if any? Indicate whether high, middle,**
3 **or low-income housing.**

4 None

5 **b. Approximately how many units, if any, would be eliminated? Indicate whether high,**
6 **middle, or low-income housing.**

7 None

8 **c. Proposed measures to reduce or control housing impacts, if any:**

9 None

10 **10. Aesthetics**

11 **a. What is the tallest height of any proposed structure(s), not including antennas; what is the**
12 **principal exterior building material(s) proposed?**

13 No structures will be constructed. The only exterior construction will be to revise a truck loading
14 area, which is below the roof line of the unit. The truck loading area will be constructed of
15 concrete.

16 **b. What views in the immediate vicinity would be altered or obstructed?**

17 None

18 **c. Proposed measures to reduce or control aesthetic impacts, if any:**

19 one

20 **11. Light and Glare**

21 **a. What type of light or glare will the proposal produce? What time of day would it mainly**
22 **occur?**

23 None

24 **b. Could light or glare from the finished project be a safety hazard or interfere with views?**

25 No

26 **c. What existing offsite sources of light or glare may affect your proposal?**

27 None

28 **d. Proposed measures to reduce or control light and glare impacts, if any:**

29 None

30 **12. Recreation**

31 **a. What designated and informal recreational opportunities are in the immediate vicinity?**

32 None in the 300 Area. The Columbia River is used for fishing and boating.

33 **b. Would the proposed project displace any existing recreational uses? If so, describe.**

34 No

- 1 c. **Proposed measures to reduce or control impacts on recreation, including recreation**
2 **opportunities to be provided by the project or applicant, if any?**

3 None

4 **13. Historic and Cultural Preservation**

- 5 a. **Are there any places or objects listed on, or proposed for, national, state, or local**
6 **preservation registers known to be on or next to the site? If so, generally describe.**

7 The 331-C building is not historically or culturally significant. The 331 building, approximately
8 100 yards north of the 331-C building, is not identified as historically significant in the 1996
9 Hanford Historic Resources Programmatic Agreement signed by DOE-RL, the State Historic
10 Preservation Office, and the Advisory Council on Historic Preservation.

- 11 b. **Generally describe any landmarks or evidence of historic, archaeological, scientific, or**
12 **cultural importance known to be on or next to the site.**

13 None

- 14 c. **Proposed measures to reduce or control impacts, if any:**

15 None

16 **14. Transportation**

- 17 a. **Identify public streets and highways serving the site, and describe proposed access to the**
18 **existing street system. Show on site plans, if any.**

19 The 300 Area generally is accessed from Stevens Drive or George Washington Way. Access to
20 the 300 Area is controlled and all streets within the area are DOE-owned and operated. Site layout
21 and access routes are shown on the maps included in the Part B permit application.

- 22 b. **Is site currently served by public transit? If not, what is the approximate distance to the**
23 **nearest transit stop?**

24 No, the site is not publicly accessible. The nearest transit stop is located at George Washington
25 Way and Sprout Street, approximately three miles south of the 331-C unit.

- 26 c. **How many parking spaces would the completed project have? How many would the project**
27 **eliminate?**

28 None

- 29 d. **Will the proposal require any new roads or streets, or improvements to existing roads or**
30 **streets, not including driveways? If so, generally describe (indicate whether public or**
31 **private).**

32 No

- 33 e. **Will the project use (or occur in the immediate vicinity of) water, rail, or air transportation?**
34 **If so, generally describe.**

35 No

1 f. How many vehicular trips per day would be generated by the completed project? If known,
2 indicate when peak volumes would occur.

3 Approximately five vehicle trips per day occur at the unit due to pickup or delivery of hazardous
4 waste. Peak volumes, if any, would vary depending on waste generation volumes and other factors
5 external to the unit, such as transporter or disposal site availability.

6 g. Proposed measures to reduce or control transportation impacts, if any:

7 None

8 **15. Public Services**

9 a. Would the project result in an increased need for public services (for example: fire
10 protection, police protection, health care, schools, other)? If so, generally describe.

11 No

12 b. Proposed measures to reduce or control direct impacts on public services, if any:

13 None

14 **16. Utilities**

15 a. Circle utilities currently available at the site: electricity, natural gas, water, refuse service,
16 telephone, sanitary sewer, septic system, other:

17 Electricity, natural gas, water, refuse service, telephone, and sanitary sewer systems are all
18 available at the 331-C unit.

19 b. Describe the utilities that are proposed for the project, the utility providing the service, and
20 the general construction activities on the site or in the immediate vicinity which might be
21 needed.

22 The existing 331-C building systems utilize electricity for heating and cooling, ventilation, and
23 computer systems. No new utility construction is planned.

24 **C. SIGNATURES**

25 The above answers are true and complete to the best of my knowledge. We understand that the lead
26 agency is relying on them to make its decision.

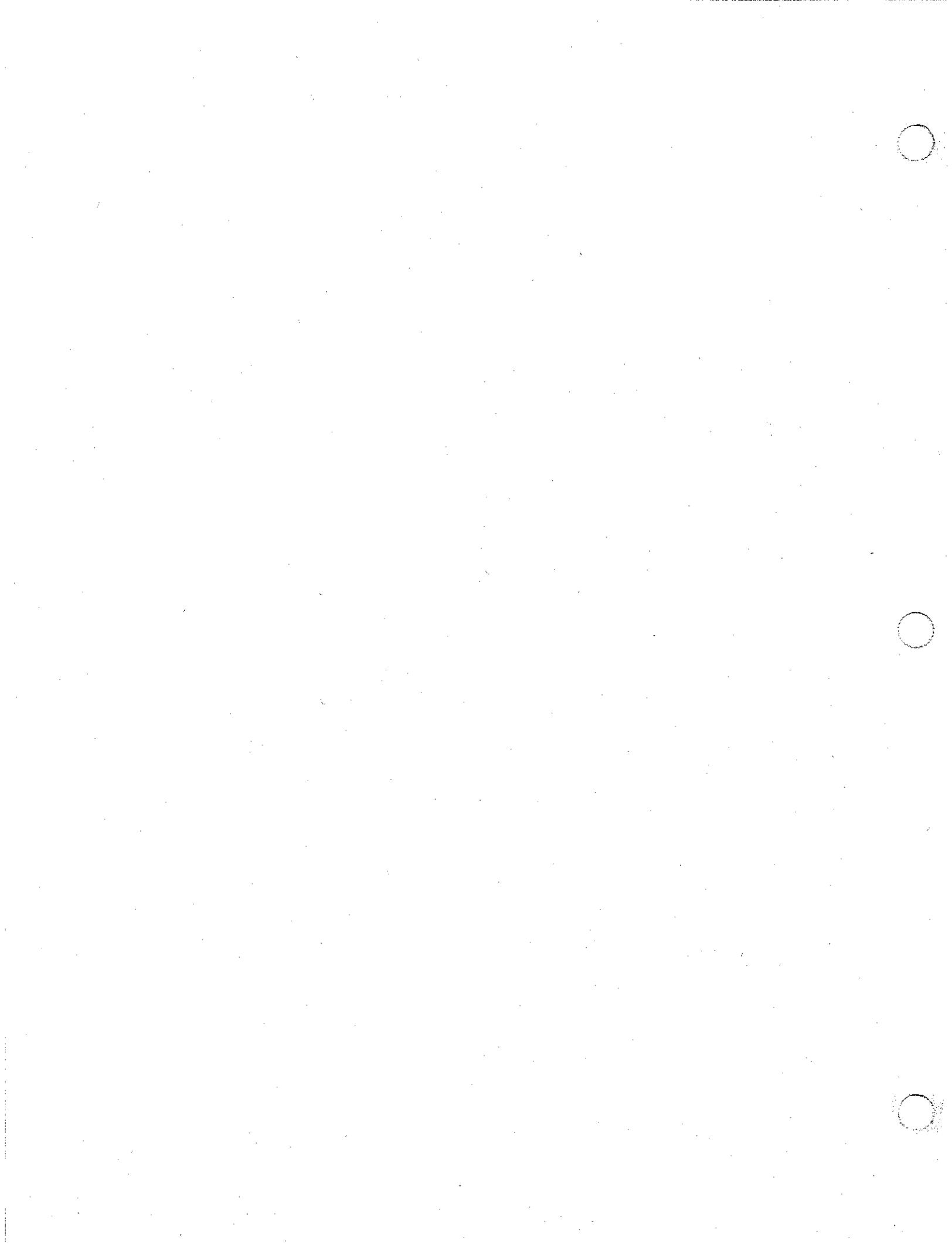
Mr. Keith A. Klein, Manager
U.S. Department of Energy
Richland Operations Office
Owner/Operator

Roby D. Enge
Roby D. Enge, Director
Environment, Safety, Health and Quality
Pacific Northwest National Laboratory
Co-Operator

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**STATE ENVIRONMENTAL POLICY ACT (SEPA)
ENVIRONMENTAL CHECKLIST FORMS**

for

**331-C Storage Unit
Hanford Facility RCRA Permit Modification**

**Revision 0
November 2005**

Pacific Northwest National Laboratory

**Washington Administrative Code
Environmental Checklist Forms
[WAC 197-11-960]**

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STATE ENVIRONMENTAL POLICY ACT ENVIRONMENTAL CHECKLIST

A. BACKGROUND

1. **Name of proposed project, if applicable:** 331-C Storage Unit Hanford RCRA Permit Modification

2. **Name of applicants:** Owner and operator: U.S. Department of Energy, Richland Operations Office (DOE-RL). Co-operator: Pacific Northwest National Laboratory.

3. **Address and phone number of applicants and contact persons:**

Owner and Operator

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

Co-operator

Pacific Northwest National Laboratory
P.O. Box 999
Richland, Washington 99352

Contact:

Keith Klein, Manager
Richland Operations Office
(509) 376-7395

Contact:

Roby Enge, Director
Environment, Safety, Health and Quality
(509) 376-1187

4. **Date checklist prepared:** November 10, 2005

5. **Agency requesting the checklist:** Washington Department of Ecology

6. **Proposed timing or schedule: (including phasing, if applicable):**

Submittal of Permit Modification and SEPA Checklist: December 15, 2005

Public Comment Period: December 15, 2005 – February 14, 2006

Begin Waste Storage: March 1, 2006 (presumes Ecology approval of temporary authorization request)

Final Permit Approval: December 31, 2006

7. **Do you have any plans for future additions, expansion, or further activity related to or connected with this proposal? If yes, explain.**

No.

8. **List any environmental information you know about that has been prepared, or will be prepared, directly related to this proposal.**

A project-specific NEPA categorical exclusion document was approved by DOE-RL on 11/21/05. Documentation also includes a cultural resources review and an ecological compliance review, both of which found no potential impacts. A complete Part B permit application has been prepared and will be submitted to Ecology on or before December 15, 2005.

9. **Do you know whether applications are pending for government approvals of other proposals directly affecting the property covered by your proposal? If yes, explain.**

None known.

1 **10. List any government approvals or permits that will be needed for your proposal, if known.**

2 Ecology approval of a Class 3 modification of the Hanford Facility RCRA Permit is needed to
3 authorize waste operations at 331-C. Interim authorization is expected to be granted through a
4 temporary authorization pursuant to WAC 173-303-830(4), but permanent authorization is made
5 through a permit modification.

6 **11. Give brief, complete description of your proposal, including the proposed uses and the size of**
7 **the project and site. There are several questions later in this checklist that ask you to describe**
8 **certain aspects of your proposal. You do not need to repeat those answers on this page.**

9 The project involves grant of final permit status (Part B) for a hazardous waste storage unit located in
10 the 331-C building located in the 300 Area of the Hanford Site. The 331-C building is a one-story
11 metal building constructed around 1970. The storage unit comprises approximately 2500 square feet.
12 It is being modified to provide replacement capability for safe storage of hazardous wastes. Wastes
13 from PNNL facilities are brought to 331-C for consolidation into truckload quantities for offsite
14 recycling, treatment, and/or disposal. No treatment or disposal of waste will occur at 331-C.

15 331-C is being retrofitted and permitted to take the place of the 305-B Storage Facility, a permitted
16 unit which PNNL has operated since 1989. The 305-B building is located in the north end of the 300
17 Area of the Hanford Site, where DOE-RL is currently focusing an effort to accelerate the 300 Area
18 cleanup. PNNL has been directed to leave the 305-B building to facilitate the expedited cleanup.

19 Granting of a RCRA permit and continued PNNL operation of a waste storage unit has significant
20 benefits, including:

- 21 • Encouragement and facilitation of waste reduction, reuse and recycling;
- 22 • Promotion of safer handling of dangerous wastes through use of specially trained personnel;
- 23 • Reduce risk of environmental release of dangerous waste constituents through use of specialized
24 facilities and equipment; and
- 25 • Provide significant cost savings to the Federal government through preparation of proper, timely
26 and economical shipments to licensed offsite recycling, treatment or disposal facilities.

27 **12. Location of the proposal. Give sufficient information for a person to understand the precise**
28 **location of your proposed project, including a street address, if any, and section, township, and**
29 **range, if known. If a proposal would occur over a range of area, provide the range or**
30 **boundaries of the site(s). Provide a legal description, site plan, vicinity map, and topographic**
31 **map, if reasonably available. While you should submit any plans required by the agency, you**
32 **are not required to duplicate maps or detailed plans submitted with any permit applications**
33 **related to this checklist.**

34 The 331-C building is located just south of the 331 Building, in the southeast portion of the 300 Area.
35 Detailed maps are provided in the Part B permit application documentation provided to Ecology.

36 **B. ENVIRONMENTAL ELEMENTS**

37 **1. Earth**

- 38 a. **General description of the site (circle one): Flat, rolling, hilly, steep slopes, mountainous,**
39 **other _____.**

40 Flat.

1 **b. What is the steepest slope on the site (approximate percent slope)?**

2 The steepest slope is approximately 1 percent.

3 **c. What general types of soils are found on the site? (for example, clay, sandy gravel, peat,**
4 **muck)? If you know the classification of agricultural soils, specify them and note any prime**
5 **farmland.**

6 The soil around the site consists of sand and sandy gravel. Much of the surrounding area has been
7 paved with asphalt or concrete. No farming is allowed on the Hanford Site.

8 **d. Are there surface indications or history of unstable soils in the immediate vicinity? If so,**
9 **describe.**

10 No unstable soil conditions are known to exist.

11 **e. Describe the purpose, type, and approximate quantities of any filling or grading proposed.**
12 **Indicate source of fill.**

13 A small amount of earth (less than 20 cubic yards) is being removed in order to create a level
14 loading area for larger tractor-trailer vehicles used to ship consolidated waste loads. The removed
15 soil will be reused on the Hanford Site.

16 **f. Could erosion occur as a result of clearing, construction, or use? If so, generally describe.**

17 Earth moving activities will be minimal and will be performed to minimize erosion and dust
18 creation.

19 **g. About what percent of the site will be covered with impervious surfaces after project**
20 **construction (for example, asphalt or buildings)?**

21 No new impervious surfaces will be constructed; the loading area is being constructed in an area
22 currently paved. The 331-C building covers about 33% of the immediate area; about 15% is
23 paved; and the balance is graveled.

24 **h. Proposed measures to reduce or control erosion, or other impacts to the earth, if any:**

25 Normal dust abatement techniques during digging such as watering.

26 **2. Air**

27 **a. What types of emissions to the air would result from the proposal (i.e., dust, automobile,**
28 **odors, industrial wood smoke) during construction and when the project is completed? If**
29 **any, generally describe and give approximate quantities, if known.**

30 Minimal quantities of dust and equipment exhaust will be emitted during construction activities.

31 When operational, the unit will receive vehicle traffic at the rate of 1-5 vehicles per day. Vehicles
32 may be autos, pickups or heavy duty vehicles up to and including truck/trailer combinations.
33 Vehicles received are operated by unit staff, by generators of waste, or by licensed hazardous
34 waste transporters transferring combined shipments to offsite dangerous waste management
35 facilities.

36 The unit also has local exhaust systems for a sampling hood and several waste storage cabinets.
37 Emissions from these systems are minimal due to care taken during normal operations. Waste
38 containers are kept closed except when adding or removing waste.

1 b. Are there any offsite sources of emissions or odors that may affect your proposal? If so,
2 generally describe.

3 None.

4 c. Proposed measures to reduce or control emissions or other impacts to the air, if any?

5 None proposed.

6 3. Water

7 A. Surface

8 1) Is there any surface water body on or in the immediate vicinity of the site (including
9 year-round and seasonal streams, saltwater, lakes, ponds, wetlands)? If yes, describe
10 type and provide names. If appropriate, state what stream or river it flows into.

11 Yes. The Columbia River flows past the eastern boundary of the 300 Area. The 331-C
12 Storage Unit is located approximately 500 feet from the shoreline of the river, which is a
13 "shoreline of state-wide significance" per the Shoreline Management Act, but is not located
14 within the wetland area, i.e. within 200 feet of the high-water mark.

15 2) Will the project require any work over, in, or adjacent to (within 200 feet) the
16 described waters? If yes, please describe and attach available plans.

17 No

18 3) Estimate the amount of fill and dredge material that would be placed in or removed
19 from surface water or wetlands and indicate the area of the site that would be affected.
20 Indicate the source of fill material.

21 None

22 4) Will the proposal require surface water withdrawals or diversions? Give general
23 description, purpose, and approximate quantities if known.

24 No

25 5) Does the proposal lie within a 100-year floodplain? If so, note location on the site plan.

26 No

27 6) Does the proposal involve any discharges of waste materials to surface waters? If so,
28 describe the type of waste and anticipated volume of discharge.

29 No

30 C. Ground

31 1) Will ground water be withdrawn, or will water be discharged to ground water? Give
32 general description, purpose, and approximate quantities if known.

33 No

- 1 2) Describe waste material that will be discharged into the ground from septic tanks or
2 other sources, if any (for example: Domestic sewage; industrial, containing the
3 following chemicals...; agricultural; etc.). Describe the general size of the system, the
4 number of such systems, the number of houses to be served (if applicable), or the
5 number of animals or humans the system(s) are expected to serve.

6 No water or wastes will be discharged to the ground. The 331-C Building is connected to the
7 300 Area sanitary sewer for domestic sewage services. The unit is equipped with secondary
8 containment systems to prevent the release of stored materials to soil or groundwater.

9 **C. Water Run-off (including storm water)**

- 10 1) Describe the source of run-off (including storm water) and method of collection and
11 disposal, if any (include quantities, if known). Where will this water flow? Will this
12 water flow into other waters? If so, describe.

13 This project will not increase or decrease the amount of stormwater or other runoff from the
14 331-C building or the 300 Area generally. Runoff from the 300 Area is generally absorbed
15 into the soil and/or evaporates from paved areas. The 331-C unit has control mechanisms
16 (secondary containment systems) to prevent contact of stormwater with wastes stored inside.

- 17 2) Could waste materials enter ground or surface waters? If so, generally describe.

18 No; the unit uses engineered structures to prevent releases of wastes into internal or external
19 drainage systems or soil.

20 **D. Proposed measures to reduce or control surface, ground, and run-off water impacts, if any:**

21 None

22 **4. Plants**

- 23 a. Check or circle the types of vegetation found on the site.

24 deciduous tree: alder, maple, aspen, other

25 evergreen tree: fir, cedar, pine, other

26 shrubs

27 grass

28 pasture

29 crop or grain

30 wet soil plants: cattail, buttercup, bulrush, skunk cabbage,

31 other

32 water plants: water lily, eelgrass, milfoil, other

33 other types of vegetation

34 No vegetation exists in the immediate area of the 331-C Storage Unit.

- 35 b. What kind and amount of vegetation will be removed or altered?

36 None

- 37 c. List threatened or endangered species known to be on or near the site.

38 Although there are no threatened or endangered species in the immediate vicinity of the 331-C Unit,
39 several threatened or endangered bird and fish species can be found in and near the Columbia River.
40 These include the bald eagle, upper Columbia River steelhead trout, upper Columbia River spring
41 Chinook salmon, and possibly the bull trout.
42

1 d. **Proposed landscaping, use of native plants, or other measures to preserve or enhance**
 2 **vegetation on the site, if any:**

3 None

4 **5. Animals**

5 a. **Circle any birds and animals which have been observed on or near the site or are known to**
 6 **be on or near the site:**

7 **birds: hawk, heron, eagle, songbirds, other: _____**

8 **mammals: deer, bear, elk, beaver, other: _____**

9 **fish: bass, salmon, trout, herring, shellfish, other: _____**

10 Birds commonly seen in the 300 Area include sparrows and other small birds as well as gulls, crows,
 11 and pigeons. Mammals are generally limited to rabbits and squirrels. Fish are found in the Columbia
 12 River 500 feet east of the 331-C unit.

13 b. **List any threatened or endangered species known to be on or near the site.**

14 None known in the 300 Area

15 c. **Is the site part of a migration route? If so, explain.**

16 Yes. The 300 Area lies within a migration route for some birds. The region bounding the Columbia
 17 River is used as a resting place for Pacific Flyway waterfowl and shore birds during migration.

18 d. **Proposed measures to preserve or enhance wildlife, if any:**

19 None

20 **6. Energy and Natural Resources**

21 a. **What kinds of energy (electric, natural gas, oil, wood stove, solar) will be used to meet the**
 22 **completed project's energy needs? Describe whether it will be used for heating,**
 23 **manufacturing, etc.**

24 Electricity: Heating, cooling, lighting, and ventilation of inhabited spaces. Fans are used for
 25 artificial ventilation of some areas (see 2a of this checklist). Recharge of battery-powered forklift.

26 Oil: Fuel and lubricants for vehicles operated by unit staff. Lubricants for equipment such as
 27 forklifts, drum dollies, and storage cabinet doors.

28 b. **Would your project affect the potential use of solar energy by adjacent properties? If so,**
 29 **generally describe.**

30 No

31 c. **What kinds of energy conservation features are included in the plans of this proposal? List**
 32 **other proposed measures to reduce or control energy impacts, if any:**

33 None

1 **7. Environmental Health**

- 2 **a. Are there any environmental health hazards, including exposure to toxic chemicals, risk of**
 3 **fire and explosion, spill, or hazardous waste, that could occur as a result of this proposal? If**
 4 **so, describe.**

5 This proposal is to move PNNL's existing hazardous waste operations from the 305-B building to
 6 the 331-C building. Operation to RCRA standards is expected to reduce the hazards described
 7 above.

8 Any operation dealing with the handling and storage of dangerous wastes entails some risk. In
 9 order to reduce the risk to acceptable levels, the 331-C Unit uses detailed procedures, engineered
 10 structures, personal protective equipment, training, and contingency planning. These provisions
 11 are detailed in the Part B permit application.

12 **1) Describe special emergency services that might be required.**

13 Hanford Patrol and Benton County Sheriff (police), Hanford Fire Department, medical
 14 personnel (through AdvanceMed Hanford), and ambulance service (through Hanford Fire
 15 Department) are available at all times to assist in any emergency situation at the unit. A spill
 16 response team is also available on site. Mutual aid agreements and Memoranda of
 17 Understanding are in place between DOE-RL and many local agencies to provide backup
 18 services. Notification of all of these services is available through PNNL's single point of
 19 contact (375-2400) at any time.

20 **2) Proposed measures to reduce or control environmental health hazards, if any:**

21 Risk reduction measures utilized at the unit are described in the Part B permit application.

22 **b. Noise**

- 23 **1) What type of noise exists in the area which may affect your project (for example:**
 24 **traffic, equipment, operation, other)?**

25 None

- 26 **2) What types and levels of noise would be created by or associated with the project on a**
 27 **short-term or a long-term basis (for example: traffic, construction, operation, other)?**
 28 **Indicate what hours noise would come from the site.**

29 The only noise associated with unit operations come from operation of vehicles delivering and
 30 picking up wastes, operation of the roll-up doors to receive these vehicles, and operation of the
 31 building HVAC and specialized ventilation systems. Vehicle traffic is generally less than five
 32 per day. Operation of hoods and cabinet ventilation is generally continuous. Normal
 33 operating hours are generally 7:00 AM to 4:30 PM. Any noise outside these hours would
 34 come from ventilation system operations.

- 35 **3) Proposed measures to reduce or control noise impacts, if any:**

36 None

37 **8. Land and Shoreline Use**

- 38 **a. What is the current use of the site and adjacent properties?**

39 The 331-C building is currently used to store equipment and materials. Adjacent 300 Area
 40 properties under PNNL control are used for research and development and support activities.

1 Many 300 Area facilities are inactive and awaiting remediation. The surrounding land use is
2 industrial/research and is planned to remain industrial/research.

3 **b. Has the site been used for agriculture? If so, describe.**

4 No portion of the Hanford Site has been used for production of food crops since the U.S.
5 Government acquired it in 1943.

6 **c. Describe any structures on the site.**

7 The 331-C building is described in the Part B permit application submitted to Ecology. It is a one-
8 story metal building constructed around 1970. Adjacent buildings are of similar construction and
9 vintage except for the 331 building, which is a three-story concrete and masonry structure.

10 **d. Will any structures be demolished? If so, what?**

11 No

12 **e. What is the current zoning classification of the site?**

13 Under DOE's Comprehensive Land Use Plan the land is zoned as industrial/research.

14 **f. What is the current comprehensive plan designation of the site?**

15 Under DOE's Comprehensive Land Use Plan the land is zoned as industrial/research.

16 **g. If applicable, what is the current shoreline master program designation of the site?**

17 Not applicable

18 **h. Has any part of the site been classified as an "environmentally sensitive" area? If so,
19 specify.**

20 No part of the 300 Area has been classified as "environmentally sensitive".

21 **i. Approximately how many people would reside or work in the completed project?**

22 No one will reside at the unit. Approximately six staff members will work at the unit.

23 **j. Approximately how many people would the completed project displace?**

24 None

25 **k. Proposed measures to avoid or reduce displacement impacts, if any:**

26 None

27 **l. Proposed measures to ensure the proposal is compatible with existing and projected land
28 uses and plans, if any:**

29 The project is fully compatible with and supports 300 Area research operations, which corresponds
30 to the current zoning as industrial/research.

31 **9. Housing**

32 **a. Approximately how many units would be provided, if any? Indicate whether high, middle,
33 or low-income housing.**

34 None

1 b. **Approximately how many units, if any, would be eliminated? Indicate whether high,**
 2 **middle, or low-income housing.**

3 None

4 c. **Proposed measures to reduce or control housing impacts, if any:**

5 None

6 **10. Aesthetics**

7 a. **What is the tallest height of any proposed structure(s), not including antennas; what is the**
 8 **principal exterior building material(s) proposed?**

9 No structures will be constructed. The only exterior construction will be to revise a truck loading
 10 area, which is below the roof line of the unit. The truck loading area will be constructed of
 11 concrete.

12 b. **What views in the immediate vicinity would be altered or obstructed?**

13 None

14 c. **Proposed measures to reduce or control aesthetic impacts, if any:**

15 one

16 **11. Light and Glare**

17 a. **What type of light or glare will the proposal produce? What time of day would it mainly**
 18 **occur?**

19 None

20 b. **Could light or glare from the finished project be a safety hazard or interfere with views?**

21 No

22 c. **What existing offsite sources of light or glare may affect your proposal?**

23 None

24 d. **Proposed measures to reduce or control light and glare impacts, if any:**

25 None

26 **12. Recreation**

27 a. **What designated and informal recreational opportunities are in the immediate vicinity?**

28 None in the 300 Area. The Columbia River is used for fishing, boating and other recreational
 29 activities.

30 b. **Would the proposed project displace any existing recreational uses? If so, describe.**

31 No

32 c. **Proposed measures to reduce or control impacts on recreation, including recreation**
 33 **opportunities to be provided by the project or applicant, if any?**

34 None

1 **13. Historic and Cultural Preservation**

- 2 a. **Are there any places or objects listed on, or proposed for, national, state, or local**
3 **preservation registers known to be on or next to the site? If so, generally describe.**

4 The 331-C building is not historically or culturally significant. The 331 building, approximately
5 100 yards north of the 331-C building, is not identified as historically significant in the 1996
6 Hanford Historic Resources Programmatic Agreement signed by DOE-RL, the State Historic
7 Preservation Office, and the Advisory Council on Historic Preservation.

- 8 b. **Generally describe any landmarks or evidence of historic, archaeological, scientific, or**
9 **cultural importance known to be on or next to the site.**

10 None

- 11 c. **Proposed measures to reduce or control impacts, if any:**

12 None

13 **14. Transportation**

- 14 a. **Identify public streets and highways serving the site, and describe proposed access to the**
15 **existing street system. Show on site plans, if any.**

16 The 300 Area generally is accessed from Stevens Drive or George Washington Way. Access to
17 the 300 Area is controlled and all streets within the area are DOE-owned and operated. Site layout
18 and access routes are shown on the maps included in the Part B permit application.

- 19 b. **Is site currently served by public transit? If not, what is the approximate distance to the**
20 **nearest transit stop?**

21 No, the site is not publicly accessible. The nearest transit stop is located at George Washington
22 Way and Sprout Street, approximately three miles south of the 331-C unit.

- 23 c. **How many parking spaces would the completed project have? How many would the project**
24 **eliminate?**

25 None

- 26 d. **Will the proposal require any new roads or streets, or improvements to existing roads or**
27 **streets, not including driveways? If so, generally describe (indicate whether public or**
28 **private).**

29 No

- 30 e. **Will the project use (or occur in the immediate vicinity of) water, rail, or air transportation?**
31 **If so, generally describe.**

32 No

1 f. How many vehicular trips per day would be generated by the completed project? If known,
2 indicate when peak volumes would occur.

3 Approximately five vehicle trips per day occur at the unit due to pickup or delivery of hazardous
4 waste. Peak volumes, if any, would vary depending on waste generation volumes and other factors
5 external to the unit, such as transporter or disposal site availability.

6 g. Proposed measures to reduce or control transportation impacts, if any:

7 None

8 **15. Public Services**

9 a. Would the project result in an increased need for public services (for example: fire
10 protection, police protection, health care, schools, other)? If so, generally describe.

11 No

12 b. Proposed measures to reduce or control direct impacts on public services, if any:

13 None

14 **16. Utilities**

15 a. Circle utilities currently available at the site: electricity, natural gas, water, refuse service,
16 telephone, sanitary sewer, septic system, other:

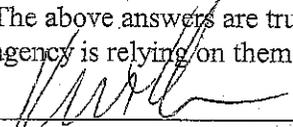
17 Electricity, natural gas, water, refuse service, telephone, and sanitary sewer systems are all
18 available at the 331-C unit.

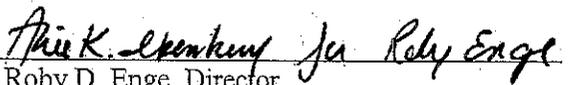
19 b. Describe the utilities that are proposed for the project, the utility providing the service, and
20 the general construction activities on the site or in the immediate vicinity which might be
21 needed.

22 The existing 331-C building systems utilize electricity for heating and cooling, ventilation, and
23 computer systems. No new utility construction is planned.

24 **C. SIGNATURES**

25 The above answers are true and complete to the best of my knowledge. We understand that the lead
26 agency is relying on them to make its decision.

27

Mr. Keith A. Klein, Manager
U.S. Department of Energy
Richland Operations Office
Owner/Operator


Roby D. Enge, Director
Environment, Safety, Health and Quality
Pacific Northwest National Laboratory
Co-Operator

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