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MAR 17 2008
BY: Nancy Blanton
Original to 3.1

STATE OF TENNESSEE
DEPARTMENT OF ENVIRONMENT AND CONSERVATION
Division of Solid Waste Management
Fifth Floor, L & C Tower
401 Church Street
Nashville, Tennessee 37243-1535

March 7, 2008

Mr. Stephen H. McCracken
Environmental Services Group
Oak Ridge Operations Office, DOE
P.O. Box 2001
Oak Ridge, TN 37831-8620

CERTIFIED MAIL 7006 2150 0005 3516 2229
RETURN RECEIPT REQUESTED

Mr. Michael Hughes, Manager
Waste Operations Project
Bechtel Jacobs Company, LLC
P. O. Box 2003
Oak Ridge, TN 37831-7234

CERTIFIED MAIL 7006 2150 0005 3516 2236
RETURN RECEIPT REQUESTED

Mr. Larry Jones, Site Manager
WESKEM, LLC
78A Mitchell Road
Oak Ridge, TN 37830-7953

CERTIFIED MAIL 7006 2150 0005 3516 1741
RETURN RECEIPT REQUESTED

Dr. Anthony Buhl
Foster Wheeler Environmental Corporation
100 WIPP Road
Lenoir City, TN 37771

CERTIFIED MAIL 7006 2150 0005 3516 1758
RETURN RECEIPT REQUESTED

RE: Temporary Authorization Extension for a Class 3 Permit Modification
Facility Name: U.S. DOE, Oak Ridge National Laboratory (ORNL) and TRU Waste
Processing Facility (WPF)
Location: Oak Ridge, Tennessee
Units: Containers (Storage and Treatment)
EPA Identification Number: TN1 89 009 0003
Permit Number: TNHW-097

Dear Messrs. McCracken, Hughes, Jones, and Buhl:

The Division of Solid Waste Management (DSWM) reviewed your request dated February 18, 2008, for a Temporary Authorization (TA) extension of 180 days to approve a Class 3

Messrs. McCracken, Hughes, Jones, and Buhl
March 7, 2008
Page 2

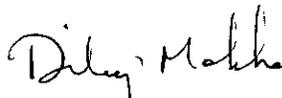
permit modification. This modification includes treatment of liquids and increased storage capacity for the Drum Aging Criteria (DAC) storage area. The treatment processes include mercury amalgamation and solidification of liquids.

The initial TA was issued on March 9, 2007, for 180 days and a first TA extension was issued on September 6, 2007, for another 180 days, effective until March 6, 2008.

In accordance with Tennessee Hazardous Waste Management Rule 1200-1-11-.07(9)(c)5(v), DSWM is granting approval for another temporary authorization extension. This temporary authorization renewal shall remain in effect until September 2, 2008.

If you have any questions, please contact me at (615) 532-0821.

Sincerely,



Dilraj Mokha
Treatment, Storage and Disposal Section
Hazardous Waste Program

cc: Mr. Jon Johnston, EPA, Region 4
Mr. Bill Krispin, Manager, Permitting Sections, DSWM
Ms. Jamie Burroughs, Manager, TSD Section, DSWM
Mr. Larry Cook, Knoxville Field Office, DSWM
Mr. John Owsley, DOE Oversight
Ms. Angela Ivory, TSD Section, DSWM

State of Tennessee
Department of Environment and
Conservation
Division of Solid Waste Management

Hazardous Waste Management
Program
5th Floor, L & C Tower
401 Church Street
Nashville, TN 37243-1535

**TEMPORARY AUTHORIZATION FOR
HAZARDOUS WASTE MANAGEMENT FACILITY PERMIT**

Permittee: U.S. Department of Energy, Bechtel Jacobs Company LLC, WESKEM, LLC, and Foster Wheeler Environmental Corp.

Facility Name: Oak Ridge National Laboratory

Owner and Operator: U.S. Department of Energy

Co-Operators: Bechtel Jacobs Company LLC, WESKEM, LLC, and Foster Wheeler Environmental Corp.

Location: Oak Ridge National Laboratory, Oak Ridge, TN 37831

EPA I. D. Number: TN1 89 009 0003

Permit Number: TNH-097

Type: Transuranic Storage Areas

Units: RH-TRU Buildings 7855, 7883, & 7884;

CH-TRU Buildings 7572, 7574, 7576, 7577, 7580, 7842, 7878, 7879, and 7823

Owner and Operator: U.S. Department of Energy

Co-Operators: Bechtel Jacobs Company LLC and WESKEM, LLC

AND

Type: CH and RH Storage Areas

Units: WPF-1 (CHSA), WPF-2 (Second Floor WPF), WPF-3 (Drum Aging Criteria (DAC)), WPF-4 (First Floor WPF), and WPF-5 Container Storage Area (CSA), WPF-6 Contact Handled Marshalling Building (CHMB), T-1 Macroencapsulation, T-2 Amalgamation Treatment, and T-3 Solidification/Stabilization Treatment

Owner and Operator: U. S. Department of Energy

Co-Operator: Foster Wheeler Environmental Corp.

Modification Type: Temporary Authorization Extension for a Class 3 Permit Modification

Pursuant to the Tennessee Hazardous Waste Management Act of 1977, as amended (Tennessee Code Annotated 68, Chapter 212, Part 1) and the regulations promulgated thereunder by the Tennessee Solid Waste Disposal Control Board (found at Tennessee Rule Chapter 1200-1-11), a temporary authorization is approved for hazardous waste management facility permit number TNH-097 issued to U.S. DOE on September 30, 1997, pursuant to Rule 1200-1-11-.07(9)(c), as follows:

Temporary Authorization - This is to allow adding treatment of liquids and increasing storage capacity for the Drum Aging Criteria (DAC) storage area located at the TRU Waste Processing Center (TWPC). The treatment processes include mercury amalgamation and solidification of liquids.

This temporary authorization is further subject to and conditioned upon the terms, conditions, limitations, standards, and schedules contained in or specified in the attachments which are a part of this temporary authorization. This temporary authorization is hereby made a part of Permit Number: TNHW-097, Installation ID Number: TN1 89 009 0003, and is effective as of **March 7, 2008**, and shall remain in effect until **September 2, 2008**, unless reissued under Rule 1200-1-11-.07(9). Failure to comply with the terms of this temporary authorization shall constitute a violation of the Permit.

March 7, 2008

Date



Mike Apple
Director



RECEIVED
MAR 10 2008

E. Nancy Blewins
original - 3.1

STATE OF TENNESSEE
DEPARTMENT OF ENVIRONMENT AND CONSERVATION
Division of Solid Waste Management
Fifth Floor, L & C Tower
401 Church Street
Nashville, Tennessee 37243 - 1535

March 4, 2008

Mr. Stephen H. McCracken
Environmental Services Group
Oak Ridge Operations Office, DOE
P.O. Box 2001
Oak Ridge, TN 37831-8620

CERTIFIED MAIL 7006 2150 0005 3516 2175
RETURN RECEIPT REQUESTED

Mr. Michael Hughes, Manager
Waste Operations Project
Bechtel Jacobs Company, LLC
P. O. Box 2003
Oak Ridge, TN 37831-7234

CERTIFIED MAIL 7006 2150 0005 3516 2182
RETURN RECEIPT REQUESTED

Mr. Larry Jones, Site Manager
WESKEM, LLC
78A Mitchell Road
Oak Ridge, TN 37830-7953

CERTIFIED MAIL 7006 2150 0005 3516 2205
RETURN RECEIPT REQUESTED

Dr. Anthony Buhl
Foster Wheeler Environmental Corporation
100 WIPP Road
Lenoir City, TN 37771

CERTIFIED MAIL 7006 2150 0005 3516 2212
RETURN RECEIPT REQUESTED

RE: Temporary Authorization Renewal for Operation of the Contact
Handled Marshalling Building
Facility Name: U.S. DOE, Oak Ridge National Laboratory (ORNL) and TRU Waste
Processing Facility (WPF)
Location: Oak Ridge, Tennessee
Units: Containers (Storage and Treatment)
EPA Identification Number: TN1 89 009 0003
Permit Number: TNHW-097

Dear Messrs. McCracken, Hughes, Jones, and Buhl:

The Division of Solid Waste Management (DSWM) reviewed your request dated February 7, 2008, for a Temporary Authorization (TA) renewal of 180 days to allow construction and

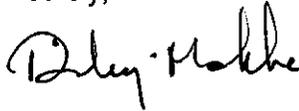
Messrs. McCracken, Hughes, Jones, and Buhl
March 4, 2008
Page 2

operation of the Contact Handled Marshalling Building at the Transuranic Waste Processing Center. The initial TA was issued on August 17, 2007 and expired on February 13, 2008.

In accordance with Tennessee Hazardous Waste Management Rule 1200-1-11-.07(9)(c)5(v), DSWM is granting approval of the temporary authorization renewal. This temporary authorization renewal shall remain in effect until August 11, 2008.

If you have any questions, please contact me at (615) 532-0821.

Sincerely,



Dilraj Mokha
Treatment, Storage and Disposal Section
Hazardous Waste Program

cc: Mr. Jon Johnston, EPA, Region 4
Mr. Bill Krispin, Manager, Permitting Sections, DSWM
Ms. Jamie Burroughs, Manager, TSD Section, DSWM
Mr. Larry Cook, Knoxville Field Office, DSWM
Mr. John Owsley, DOE Oversight
Ms. Angela Ivory, TSD Section, DSWM

**State of Tennessee
Department of Environment and
Conservation
Division of Solid Waste Management**

**Hazardous Waste Management
Program
5th Floor, L & C Tower
401 Church Street
Nashville, TN 37243-1535**

**TEMPORARY AUTHORIZATION FOR
HAZARDOUS WASTE MANAGEMENT FACILITY PERMIT**

Permittee: U.S. Department of Energy, Bechtel Jacobs Company LLC, WESKEM, LLC, and Foster Wheeler Environmental Corp.

Facility Name: Oak Ridge National Laboratory

Owner and Operator: U.S. Department of Energy

Co-Operators: Bechtel Jacobs Company LLC, WESKEM, LLC, and Foster Wheeler Environmental Corp.

Location: Oak Ridge National Laboratory, Oak Ridge, TN 37831

EPA I. D. Number: TN1 89 009 0003

Permit Number: TNHW-097

Type: Transuranic Storage Areas

Units: RH-TRU Buildings 7855, 7883, & 7884;

CH-TRU Buildings 7572, 7574, 7576, 7577, 7580, 7842, 7878, 7879, and 7823

Owner and Operator: U.S. Department of Energy

Co-Operators: Bechtel Jacobs Company LLC and WESKEM, LLC

AND

Type: CH and RH Storage Areas

Units: WPF-1 (CHSA), WPF-2 (Second Floor WPF), WPF-3 (Drum Aging Criteria (DAC)), WPF-4 (First Floor WPF), and WPF-5 Container Storage Area (CSA), WPF-6 Contact Handled Marshalling Building (CHMB), T-1 Macroencapsulation, T-2 Amalgamation Treatment, and T-3 Solidification/Stabilization Treatment, T-2 Amalgamation Treatment, and T-3 Solidification/Stabilization Treatment

Owner and Operator: U. S. Department of Energy

Co-Operator: Foster Wheeler Environmental Corp.

Modification Type: Temporary Authorization for Operation of the Contact Handled Marshalling Building

Pursuant to the Tennessee Hazardous Waste Management Act of 1977, as amended (Tennessee Code Annotated 68, Chapter 212, Part 1) and the regulations promulgated thereunder by the Tennessee Solid Waste Disposal Control Board (found at Tennessee Rule Chapter 1200-1-11), a temporary authorization is approved for hazardous waste management facility permit number TNHW-097 issued to U.S. DOE on September 30, 1997, pursuant to Rule 1200-1-11-.07(9)(c), as follows:

Temporary Authorization - This is to allow construction and operation of Contact Handled Marshalling Building (CHMB) at the Transuranic Waste Processing Center until the Class 3 modification (which includes treatment of liquids and increased storage capacity for the DAC storage area) has been approved. The CHMB is metal sided

building nominally 55-ft wide, 140-ft long (7700 ft²) and 32-ft high at the peak. This unit will be used to store CH-TRU, LLW, or LLM waste to facilitate processing or in preparation for shipment of waste off-site to an approved TSDF.

This temporary authorization is further subject to and conditioned upon the terms, conditions, limitations, standards, and schedules contained in or specified in the attachments which are a part of this temporary authorization. This temporary authorization is hereby made a part of Permit Number: TNHW-097, Installation ID Number: TN1 89 009 0003, and is effective as of **February 14, 2008**, and shall remain in effect until **August 11, 2008**, unless reissued under Rule 1200-1-11-.07(9). Failure to comply with the terms of this temporary authorization shall constitute a violation of the Permit.

March 4, 2008
Date



Mike Apple
Director



STATE OF TENNESSEE
DEPARTMENT OF ENVIRONMENT AND CONSERVATION
Division of Solid Waste Management
Fifth Floor, L & C Tower
401 Church Street
Nashville, Tennessee 37243-1535

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JAN 10 2008
BY Nancy Blevins
orig - 3.1

January 4, 2008

Mr. Stephen H. McCracken
Environmental Services Group
Oak Ridge Operations Office, DOE
P.O. Box 2001
Oak Ridge, TN 37831-8620

CERTIFIED MAIL 7006 2150 0005 3516 1406
RETURN RECEIPT REQUESTED

Mr. Michael Hughes, Manager
Waste Operations Project
Bechtel Jacobs Company, LLC
P. O. Box 2003
Oak Ridge, TN 37831-7234

CERTIFIED MAIL 7006 2150 0005 3516 1413
RETURN RECEIPT REQUESTED

Mr. Larry Jones, Site Manager
WESKEM, LLC
78A Mitchell Road
Oak Ridge, TN 37830-7953

CERTIFIED MAIL 7006 2150 0005 3516 1420
RETURN RECEIPT REQUESTED

Dr. Anthony Buhl
Foster Wheeler Environmental Corporation
100 WIPP Road
Lenoir City, TN 37771

CERTIFIED MAIL 7006 2150 0005 3516 1390
RETURN RECEIPT REQUESTED

RE: Approval of a Class '1 Modification
Facility Name: U.S. DOE, Oak Ridge National Laboratory (ORNL) and
TRU Waste Processing Facility (WPF)
Location: Oak Ridge, Tennessee
Units: Containers (Storage)
EPA Identification Number: TN1 89 009 0003
Permit Number: TNH-097
Modification Number: 24 (A-843)

Dear Messrs. McCracken, Hughes, Jones, and Buhl:

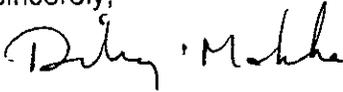
Enclosed is a copy of the Class '1 modification that applies to the above referenced permit. This modification is in accordance with Tennessee Hazardous Waste Management Rule 1200-1-11-.07(9)(c). The Class '1 modification reflects changes in the Table of Contents;

Messrs. McCracken, Frye, Jones, and Buhl
January 4, 2008
Page 2

Section II, General Facility Conditions; Attachment 6, Closure Plan; and Attachment 7, Container Management.

If you have any questions, please contact me at (615) 532-0821.

Sincerely,



Dilraj Mokha
Treatment, Storage and Disposal Section
Hazardous Waste Program

cc: Mr. Jon Johnston, Chief, RCRA Branch, EPA, Region 4
Mr. Bill Krispin, Manager, Permitting Sections, DSWM
Ms. Jamie Burroughs, Manager, TSD Section, DSWM
Mr. Larry Cook, Manager, Knoxville Field Office, DSWM
Mr. John Owsley, DOE Oversight
Ms. Angela Ivory, TSD Section, DSWM

State of Tennessee
Department of Environment and
Conservation
Division of Solid Waste Management

Hazardous Waste Management
Program
5th Floor, L & C Tower
401 Church Street
Nashville, TN 37243-1535

**MODIFICATION TO
HAZARDOUS WASTE MANAGEMENT FACILITY PERMIT**

Permittee: U.S. Department of Energy, Bechtel Jacobs Company LLC, WESKEM, LLC, and Foster Wheeler Environmental Corp.
Facility Name: Oak Ridge National Laboratory
Owner and Operator: U.S. Department of Energy
Co-Operators: Bechtel Jacobs Company LLC, WESKEM, LLC, and Foster Wheeler Environmental Corp.
Location: Oak Ridge National Laboratory, Oak Ridge TN 37831
EPA Identification Number: TN1 89 009 0003
Permit Number: TNHW-097

Type: Transuranic Storage Areas
Units: RH-TRU Buildings 7855, 7883, & 7884;
CH-TRU Buildings 7572, 7574, 7576, 7577, 7580, 7842, 7878, 7879, and 7823

AND

Type: CH and RH Storage Areas
Units: WPF-1 (CHSA), WPF-2 (Second Floor WPF), WPF-3 (Drum Aging Criteria (DAC)), WPF-4 (First Floor WPF), WPF-5 Container Storage Area (CSA), WPF-6 Contact Handled Marshalling Building (CHMB), T-1 Macroencapsulation, T-2 Amalgamation Treatment, and T-3 Solidification/Stabilization Treatment

MODIFICATION TYPE: Class '1
MODIFICATION NUMBER: 24(A-843)

Pursuant to the Tennessee Hazardous Waste Management Act of 1977, as amended (Tennessee Code Annotated 68, Chapter 212, Part 1) and the regulations promulgated thereunder by the Tennessee Solid Waste Disposal Control Board (found at Tennessee Rule Chapter 1200-1-11), hazardous waste management facility permit number TNHW-097 issued to U.S. DOE on September 30, 1997, is hereby modified, pursuant to Rule 1200-1-11-.07(9)(c), as follows:

- (1) Revised Table of Contents, under General Facility Conditions, to reflect change in page numbers due to deletion of Foster Wheeler from Financial Requirements.
- (2) In Section II.N, General Facility Conditions, removed Foster Wheeler from Financial Requirements since it is no longer an owner of the facility.
- (3) In Attachment 6, Closure Plan, Sections 6-4 to 6-8, removed Foster Wheeler from requirements for Closure and Post-Closure Cost Estimates; Financial Assurance

Mechanisms for Closure and Post-Closure; and Liability Requirements. In Section 6-3, last paragraph, last sentence has been changed to read "The certification will be signed by DOE and Foster Wheeler Environmental Corp. and"

- (4) In Attachment 7, page 7-12, under WPF Units description, the first line has been deleted.
- (5) In Attachment 7, page 7-27, under Drum Aging Criteria (DAC) Area description, 2 paragraphs have been added at the end of this section. The first paragraph added is for the storage of a maximum of 10 over-packed concrete casks or packaged 72B canisters in the covered 30 ton crane bay outside the first floor of the Waste Processing Facility (WPF). The second paragraph added is for the use of a roof frame to cover the macroencapsulated boxes of low-level mixed waste (LLMW).

This permit modification is further subject to and conditioned upon the terms, conditions, limitations, standards, and schedules contained in or specified in the attachment(s) which are a part of this modification. This modification is hereby made a part of Permit Number: TNHW-097, EPA ID Number: TN1 89 009 0003. The Class '1' modification is effective as of January 4, 2008, unless continued, revoked and reissued, or terminated under Rule 1200-1-11-.07(9). Failure to comply with the terms of this modification shall constitute a violation of the Permit.

January 4, 2008
Date



Mike Apple
Director

POSTED



State of Tennessee
Department of Environment and Conservation
Division of Solid Waste Management
5th Floor L&C Tower
401 Church St.
Nashville, TN 37243-1535

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SEP 9 2007

BY: *N. Blinn*

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September 6, 2007

Mr. Stephen H. McCracken
Environmental Services Group
Oak Ridge Operatons Office, DOE
P.O. Box 2001
Oak Ridge, TN 37831-8620

CERTIFIED MAIL 7006 2150 005 3516 2144
RETURN RECEIPT REQUESTED

Mr. Michael Hughes, Manager
Waste Operations Project
Bechtel Jacobs Company, LLC
P.O. Box 2003
Oak Ridge, TN 37831-7234

CERTIFITED MAIL 7006 2150 0005 3516 2151
RETURN RECEIPT REQUESTED

Mr. Larry Jones, Site Manager
WESKEM, LLC
P.O. Box 4699
Oak Ridge, TN 37830-7953

CERTIFIED MAIL 7006 2150 0005 3516 2168
RETURN RECEIPT REQUESTED

Dr. Anthony Buhl
Foster Wheeler Environmental Corporation
100 WIPP Rd.
Lenoir City, TN 37771

CERTIFITED MAIL 7006 2150 0005 3516 5022
RETURN RECEIPT REQUESTED

RE: Temporary Authorization Renewal for a Class 3 Modification
Facility Name: U.S. DOE, Oak Ridge National Laboratory (ORNL) and
TRU Waste Processing Facility (WPF)
Location: Oak Ridge, Tennessee
Units: Containers (Storage)
EPA Identification Number: TN1 89 009 0003
Permit Number: TNH-097

Dear Messrs. McCracken, Hughes, Jones, and Buhl:

The Division of Solid Waste Management (DSWM) reviewed your request dated August 9, 2007, for a temporary authorization renewal of 180 days to allow Foster Wheeler Environmental Corporation to operate Transuranic (TRU/Alpha Low-Level Waste (LLW)

Messrs. McCracken, Hughes, Jones, and Buhl
September 6, 2007
Page 2

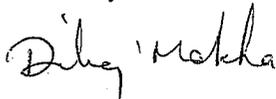
Remediation facility, which is also referred to as the TRU Waste Processing Center (TWPC). This TA will continue to allow additional treatment options and additional storage of mixed waste at the TWPC. The treatment processes include mercury amalgamation and solidification. The initial temporary authorization was issued for a Class 3 modification on March 9, 2007 and was effective from **March 9, 2007** until **September 6, 2007**.

The Class 3 modification was received on July 13, 2007. The extension of the initial temporary authorization is necessary to allow completion of the Class 3 codification process.

In accordance with Tennessee Hazardous Waste Management Rule 1200-1-11-.07(9)(c)5, DSWM is granting approval of the temporary authorization renewal for the additional treatment options and storage at TRU Waste Processing Center (TWPC). This temporary authorization renewal becomes effective as of **September 6, 2007** and shall remain in effect until **March 6, 2008**.

If you have any questions, please contact me at (615) 532-0821.

Sincerely,



Dilraj Mokha
Treatment, Storage and Disposal Section
Hazardous Waste Program

cc: Mr. Jon Johnston, Chief, RCRA Branch, EPA, Region 4
Mr. Bill Krispin, Manager, Permitting Sections, DSWM
Ms. Jamie Burroughs, Manager, TSD Section, DSWM
Mr. Larry Cook, Knoxville Field Office, DSWM
Mr. John Owsley, DOE Oversight
Ms. Angela Ivory, TSD Section, DSWM

State of Tennessee
Department of Environment and
Conservation
Division of Solid Waste Management

Hazardous Waste Management
Program
5th Floor, L & C Tower
401 Church Street
Nashville, TN 37243-1535

**TEMPORARY AUTHORIZATION FOR
HAZARDOUS WASTE MANAGEMENT FACILITY PERMIT**

Permittee: U.S. Department of Energy, Bechtel Jacobs Company LLC, WESKEM, LLC, and Foster Wheeler Environmental Corp.

Facility Name: Oak Ridge National Laboratory

Owner and Operator: U.S. Department of Energy

Co-Operators: Bechtel Jacobs Company LLC, WESKEM, LLC, and Foster Wheeler Environmental Corp.

Location: Oak Ridge National Laboratory, Oak Ridge, TN 37831

EPA I. D. Number: TN1 89 009 0003

Permit Number: TNH-097

Type: Transuranic Storage Areas

Units: RH-TRU Buildings 7855, 7883, & 7884;

CH-TRU Buildings 7572, 7574, 7576, 7577, 7580, 7842, 7878, 7879, and 7823

Owner and Operator: U.S. Department of Energy

Co-Operators: Bechtel Jacobs Company LLC and WESKEM, LLC

AND

Type: CH and RH Storage Areas

Units: WPF-1 (CHSA), WPF-2 (Second Floor WPF), WPF-3 (Drum Aging Criteria (DAC)), WPF-4 (First Floor WPF), and WPF-5 Container Storage Area (CSA), T-1 Macroencapsulation, T-2 Amalgamation Treatment, and T-3 Solidification/Stabilization Treatment

Owner and Operator: U. S. Department of Energy

Co-Operator: Foster Wheeler Environmental Corp.

Modification Type: Temporary Authorization for a Class 3 Modification

Pursuant to the Tennessee Hazardous Waste Management Act of 1977, as amended (Tennessee Code Annotated 68, Chapter 212, Part 1) and the regulations promulgated thereunder by the Tennessee Solid Waste Disposal Control Board (found at Tennessee Rule Chapter 1200-1-11), a temporary authorization is approved for hazardous waste management facility permit number TNH-097 issued to U.S. DOE on September 30, 1997, pursuant to Rule 1200-1-11-.07(9)(c), as follows:

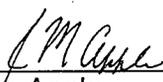
Temporary Authorization - Addition of treatment options and additional storage of mixed waste at the TRU Waste Processing Center (TWPC). The treatment processes include mercury amalgamation and solidification of liquids.

These additions have been incorporated in the permit and are reflected in the Permit Page, Section III (Specific Conditions for

Storage in Containers), Section IV (Specific Conditions For Physical and Chemical Treatment), and Attachments 1, 3, 6, 7, 8, and Appendix 5-1. Appendix 8-2 has been added to describe examples of Nochar Products. In Appendix 5-1, Figure 5-24 has been revised and Figure 5-27 has been deleted. Two figures namely, Figure 5-27 (WPF Container Storage Area (CSA) and Figure 5-28 (WPF Drum Aging Criteria Area) have been added.

This temporary authorization is further subject to and conditioned upon the terms, conditions, limitations, standards, and schedules contained in or specified in the attachments which are a part of this temporary authorization. This temporary authorization is hereby made a part of Permit Number: TNHW-097, Installation ID Number: TN1 89 009 0003, and is effective as of **September 6, 2007**, and shall remain in effect until **March 6, 2008**, unless reissued under Rule 1200-1-11-.07(9). Failure to comply with the terms of this temporary authorization shall constitute a violation of the Permit.

September 6, 2007
Date



Mike Apple
Director



RECEIVED
AUG 23 2007

BY: *Nancy Blewins*

STATE OF TENNESSEE
DEPARTMENT OF ENVIRONMENT AND CONSERVATION
Division of Solid Waste Management
Fifth Floor, L & C Tower
401 Church Street
Nashville, Tennessee 37243 - 1535

August 17, 2007

Mr. Stephen H. McCracken
Environmental Services Group
Oak Ridge Operations Office, DOE
P.O. Box 2001
Oak Ridge, TN 37831-8620

**CERTIFIED MAIL 7006 0100 0005 5070 5198
RETURN RECEIPT REQUESTED**

Mr. Michael Hughes, Manager
Waste Operations Project
Bechtel Jacobs Company, LLC
P. O. Box 2003
Oak Ridge, TN 37831-7234

**CERTIFIED MAIL 7006 0100 0005 5070 5181
RETURN RECEIPT REQUESTED**

Mr. Larry Jones, Site Manager
WESKEM, LLC
78A Mitchell Road
Oak Ridge, TN 37830-7953

**CERTIFIED MAIL 7006 0100 0005 5070 5174
RETURN RECEIPT REQUESTED**

Dr. Anthony Buhl
Foster Wheeler Environmental Corporation
100 WIPP Road
Lenoir City, TN 37771

**CERTIFIED MAIL 7006 0100 0005 5070 5167
RETURN RECEIPT REQUESTED**

RE: Approval of a Class 1 Modification
Facility Name: U.S. DOE, Oak Ridge National Laboratory (ORNL) and
TRU Waste Processing Facility (WPF)
Location: Oak Ridge, Tennessee
Units: Containers (Storage)
EPA Identification Number: TN1 89 009 0003
Permit Number: TNHW-097
Modification Number: 23(A-828)

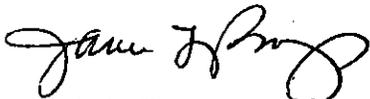
August 17, 2007
Page 2

Dear Messrs. McCracken, Hughes, Jones, and Buhl:

The Division of Solid Waste Management has reviewed the July 13, 2007, Class ¹1 Modification for the above referenced permit. This Class ¹1 Modification involves administrative and informational changes at the TRU Waste Processing Center (TWPC) to modify the storage units to include transport units for solid mixed, low-level waste that is packaged in Department of Transportation compliant containers and ready for shipment. This modification is in accordance with Tennessee Hazardous Waste Management Rule 1200-1-11-.07(9)(c) and is hereby approved.

If you have any questions, please contact Ms. Dilraj Mokha of my staff at (615) 532-0821.

Sincerely,



Jamie L. Burroughs, Manager
Treatment, Storage and Disposal Section
Hazardous Waste Program

Enclosure

cc: Ms. Angela Ivory, TSD Section, DSWM
Mr. William Krispin, Manager, Permitting Sections, DSWM
Mr. Jon Johnston, Chief, RCRA Branch, EPA, Region 4
Mr. Glen Galen, Bechtel Jacobs Company, LLC
Mr. Revendra Awasthi, Knoxville Field Office, DSWM
Mr. John Owsley, DOE Oversight
File Room

State of Tennessee
Department of Environment
and Conservation
Division of Solid Waste Management

Hazardous Waste Management Program
5th Floor, L & C Tower
401 Church Street
Nashville, Tennessee 37243-1535

**MODIFICATION TO
HAZARDOUS WASTE MANAGEMENT FACILITY PERMIT**

Permittee: U.S. Department of Energy, Bechtel Jacobs Company LLC, WESKEM, LLC, and Foster Wheeler Environmental Corp.

Facility Name: Oak Ridge National Laboratory

Owner and Operator: U.S. Department of Energy

Co-Operators: Bechtel Jacobs Company LLC, WESKEM, LLC, and Foster Wheeler Environmental Corp.

Location: Oak Ridge National Laboratory, Oak Ridge, TN 37831

EPA Identification Number: TN1 89 009 0003

Permit Number: TNHW-097

Type: Transuranic Storage Areas

Units: RH-TRU Buildings 7855, 7883, & 7884;

CH-TRU Buildings 7572, 7574, 7576, 7577, 7580, 7842, 7878, 7879, and 7823

Owner and Operator: U.S. Department of Energy

Co-Operators: Bechtel Jacobs Company LLC, WESKEM, LLC

AND

Type: CH and RH Storage Areas

Units: WPF-1 (CHSA), WPF-2 (Second Floor WPF), WPF-3 (Drum Aging Criteria (DAC)), WPF-4 (First Floor WPF), and WPF-5 Container Storage Area (CSA), T-1 Macroencapsulation, T-2 Amalgamation Treatment, and T-3 Solidification/Stabilization Treatment

Owner and Operator: U. S. Department of Energy

Co-Operator: Foster Wheeler Environmental Corp.

MODIFICATION TYPE: Class 11 Modification

MODIFCATION NUMBER: 23(A-828)

Pursuant to the Tennessee Hazardous Waste Management Act of 1977, as amended (Tennessee Code Annotated 68, Chapter 212, Part 1) and the regulations promulgated thereunder by the Tennessee Solid Waste Disposal Control Board (found at Tennessee Rule Chapter 1200-1-11), hazardous waste management facility permit number TNHW-0097 issued to U.S. DOE on September 30, 1997, is hereby modified, pursuant to Rule 1200-1-11-.07(9)(c), as follows:

1. Page 7-26; in subsection Container Storage Area (CSA), changed the last sentence to read as follows:

"Additionally, the portable waste storage units may include transport units, referred to as flatbed trucks that will be used to ship the waste. These trucks have a roll back cover that will ensure that the containers are covered unless waste is being added or removed from the storage unit or when the cover is pulled back to allow access for inspections and will only be used for solid LLMW that is packaged in DOT compliant containers and ready for shipment."

2. Page 7-27; in subsection Drum Aging Criteria (DAC) Area, changed the last sentence in the second paragraph to read as follows:

"Additionally, the portable waste storage units may include transport units, referred to as flatbed trucks that will be used to ship the waste. These trucks have a roll back cover that will ensure that the containers are covered unless waste is being added or removed from the storage unit or when the cover is pulled back to allow access for inspections and will only be used for solid LLMW that is packaged in DOT compliant containers and ready for shipment."

This permit modification is further subject to and conditioned upon the terms, conditions, limitations, standards, and schedules contained in or specified in the attachments, which are a part of this permit modification. This modification is hereby made a part of Permit Number: TNHW-097, EPA ID Number: TN1 89 009 0003, and is effective as of August 17, 2007, and shall remain in effect until September 30, 2007, unless continued, revoked and reissued, or terminated under Rule 1200-1-11-.07(9). Failure to comply with the terms of this permit modification shall constitute a violation of the Permit.

August 17, 2007
Date



Mike Apple, Director



RECEIVED
SEP 05 2007
E. N. Blewett 9-5-07

STATE OF TENNESSEE
DEPARTMENT OF ENVIRONMENT AND CONSERVATION
Division of Solid Waste Management
Fifth Floor, L & C Tower
401 Church Street
Nashville, Tennessee 37243 - 1535

August 17, 2007

Mr. Stephen H. McCracken
Environmental Services Group
Oak Ridge Operations Office, DOE
P.O. Box 2001
Oak Ridge, TN 37831-8620

**CERTIFIED MAIL 7006 2150 0005 3516 2403
RETURN RECEIPT REQUESTED**

Mr. Michael Hughes, Manager
Waste Operations Project
Bechtel Jacobs Company, LLC
P. O. Box 2003
Oak Ridge, TN 37831-7234

**CERTIFIED MAIL 7006 2150 0005 3516 2366
RETURN RECEIPT REQUESTED**

Mr. Larry Jones, Site Manager
WESKEM, LLC
78A Mitchell Road
Oak Ridge, TN 37830-7953

**CERTIFIED MAIL 7006 2150 0005 3516 2441
RETURN RECEIPT REQUESTED**

Dr. Anthony Buhl
Foster Wheeler Environmental Corporation
100 WIPP Road
Lenoir City, TN 37771

**CERTIFIED MAIL 7006 2150 0005 3516 2489
RETURN RECEIPT REQUESTED**

RE: Temporary Authorization for a Class 3 Modification
Facility Name: U.S. DOE, Oak Ridge National Laboratory (ORNL) and
TRU Waste Processing Facility (WPF)
Location: Oak Ridge, Tennessee
Units: Containers (Storage)
EPA Identification Number: TN1 89 009 0003
Permit Number: TNHW-097

Dear Messrs. McCracken, Hughes, Jones, and Buhl:

The Division of Solid Waste Management (DSWM) reviewed your Temporary Authorization request dated July 13, 2007, to construct and operate an additional storage facility for mixed waste at the TRU Waste Processing Center (TWPC) and to allow construction of this storage facility at the TWPC to commence.

In accordance with Tennessee Hazardous Waste Management Rule 1200-1-11-.07(9)(c)5, DSWM is granting approval for the construction and operation for a storage facility at TRU Waste Processing Center (TWPC). This Temporary Authorization becomes effective as of August 17, 2007 and shall remain in effect until February 13, 2008.

If you have any questions, please contact Ms. Dilraj Mokha of my staff at (615) 532-0821.

Sincerely,



Jamie L. Burroughs, Manager
Treatment, Storage and Disposal Section
Hazardous Waste Program

Enclosure

cc: Ms. Angela Ivory, TSD Section, DSWM
Mr. William Krispin, Manager, Permitting Sections, DSWM
Mr. Jon Johnston, Chief, RCRA Branch, EPA, Region 4
Mr. Glen Galen, Bechtel Jacobs Company, LLC
Mr. Revendra Awasthi, Knoxville Field Office, DSWM
Mr. John Owsley, DOE Oversight
File Room

State of Tennessee
Department of Environment and
Conservation
Division of Solid Waste Management

Hazardous Waste Management
Program
5th Floor, L & C Tower
401 Church Street
Nashville, TN 37243-1535

**TEMPORARY AUTHORIZATION FOR
HAZARDOUS WASTE MANAGEMENT FACILITY PERMIT**

Permittee: U.S. Department of Energy, Bechtel Jacobs Company LLC, WESKEM, LLC, and Foster Wheeler Environmental Corp.

Facility Name: Oak Ridge National Laboratory

Owner and Operator: U.S. Department of Energy

Co-Operators: Bechtel Jacobs Company LLC, WESKEM, LLC, and Foster Wheeler Environmental Corp.

Location: Oak Ridge National Laboratory, Oak Ridge TN 37831

EPA Identification Number: TN1 89 009 0003

Permit Number: TNHW-097

Type: Transuranic Storage Areas

Units: RH-TRU Buildings 7855, 7883, & 7884;

CH-TRU Buildings 7572, 7574, 7576, 7577, 7580, 7842, 7878, 7879, and 7823

AND

Type: CH and RH Storage Areas

Units: WPF-1 (CHSA), WPF-2 (Second Floor WPF), WPF-3 (Drum Aging Criteria (DAC)), WPF-4 (First Floor WPF), WPF-5 Container Storage Area (CSA), WPF-6 Contact Handled Marshalling Building (CHMB), T-1 Macroencapsulation, T-2 Amalgamation Treatment, and T-3 Solidification/Stabilization Treatment

Modification Type: Temporary Authorization for a Class 3 Modification

Pursuant to the Tennessee Hazardous Waste Management Act of 1977, as amended (Tennessee Code Annotated 68, Chapter 212, Part 1) and the regulations promulgated thereunder by the Tennessee Solid Waste Disposal Control Board (found at Tennessee Rule Chapter 1200-1-11), a temporary authorization is approved for hazardous waste management facility permit number TNHW-0097 issued to Oak Ridge National Laboratory, is hereby modified, pursuant to Rule 1200-1-11-.07(9)(c), as follows:

1. The Permit Approval Letter; in Units, WPF-6 Contact Handled Marshalling Building (CHMB) was added.
2. Subsection III, A. Waste Identification, Page III-1; WPF-6 (CHMB) 66,000 was added.
3. Page V-1; Subsection V, Schedule of Compliance was added.
4. Page 3-21; Table 3-8: WPF Project Weekly RCRA Waste Container Storage Area Inspections, has been updated to add WPF-6 (CHMB).

5. Page 5-1-1; Appendix 5-1 ORNL Hazardous Waste Unit Description and Drawings, Table 5-1, has been updated to add WPF-6 Contact Handled Marshalling Building (CHMB).
6. Page 5-1-6; TRU Waste Processing Facility (WPF), has been updated to read as follows:

"The project involves a single, compact Process Building approximately 120 ft west of the Melton Valley Storage Tank Vault at ORNL, two pre-fabricated metal support facilities constructed to protect the containerized CH solid waste from the weather upon receipt (the CHSA and the CHMB), and portable waste transport containers, referred to as Drum Aging Criteria (DACs) Area, used to protect the containerized CH solid waste from the weather during drum aging prior to equilibration for head space gas sampling. This facility will be used for storage and/or treatment of CH-TRU radioactive mixed wastes, RH-TRU radioactive mixed wastes, and low level mixed wastes. Additional portable waste transport containers, the ME Building, referred to as Container Storage Area (CSA), and the CHMB will be used for temporary storage of waste. The wastes will be stored in miscellaneous containers, including drums and boxes of various sizes (Figs. 5-24, 5-25, 5-26, 5-27, 5-28 and 5-29)."
7. Page 5-1-35; Figure 5-29 WPF Contact Handled Marshalling Building (CHMB), has been updated.
8. Page 6-5, Table 6-1 Maximum Waste Inventory, has been updated.
9. Page 7-11, Table 7-2 Maximum operating and Secondary Containment Capacities for the CH-TRU Units and footnotes, has been updated.
10. Page 7-12, subsection WPF Units added a second paragraph to read as follows: "The CHMB floor elevation (approximately 774 ft MSL), is above the 100-year flood elevation of approximately 754 ft MSL. The building has 6 inch integrated curbs and ramped access at vehicle entrances to prevent both run-on and run-off."
11. Page 7-26, subsection Waste Receipt, has been updated to read as follows: "CH drums and boxes will be received at the Contact Handled Staging Area (CHSA) facility or at the Contact Handled Marshalling Building (CHMB). Drums up to 110-gal capacities and boxes of various dimensions will be externally inspected and surveyed prior to acceptance. The containers will be sorted and moved to the appropriate staging area in preparation of waste processing."
12. Page 7-26, subsection Contact Handled Marshalling Building (CHMB), has been added to read as follows: "The CHMB is a metal sided building nominally 55-ft wide, 140-ft long (7700 ft²) and 32-ft high at the peak. This unit will be used to store CH-TRU, LLW, or LLM waste to facilitate processing or in preparation for shipment of waste off-site to an approved TSDF."
13. Page 7-1-1, Table 7-1-1 Building Drawings, has been updated.
14. Appendix 7, Figure 7-1-24 TRU/ALPHA Waste Treatment Project Contact Handled Marshalling Building, has been added.

15. Appendix 7, Figure 7-1-25 TRU/ALPHA Waste Treatment Project Contact Handled Marshalling Building Foundation Mat at EI 777'-9", has been added.
16. Page 7-2-4, calculations for CHMB have been added.

This temporary authorization is further subject to and conditioned upon the terms, conditions, limitations, standards, and schedules contained in or specified in the attachments, which are a part of this temporary authorization. This temporary authorization is hereby made a part of Permit Number: TNHW-097, EPA ID Number: TN1 89 009 0003 and is effective as of August 17, 2007, and shall remain in effect until February 13, 2008, unless reissued under Rule 1200-1-11-.07(9). Failure to comply with the terms of this temporary authorization shall constitute a violation of the Permit.

August 17, 2007
Date



Mike Apple, Director



**STATE OF TENNESSEE
DEPARTMENT OF ENVIRONMENT AND CONSERVATION
Division of Solid Waste Management
Fifth Floor, L & C Tower
401 Church Street
Nashville, Tennessee 37243-1535**

RECEIVED
MAY 07 2007

E Nancy Blevins
@sig. 15-1.6
cc Buhl
Atst,gtt

May 3, 2007

Stephen H. McCracken
U.S. Department of Energy
P. O. Box 2001
Oak Ridge, Tennessee 37830

**CERTIFIED MAIL 7006 2150 0005 3508 0363
RETURN RECEIPT REQUESTED**

Charlie Frye
Bechtel Jacobs Company LLC
P. O. Box 4699
Oak Ridge, TN 37831-7119

**CERTIFIED MAIL 7006 2150 0005 3508 0356
RETURN RECEIPT REQUESTED**

Larry Jones
WESKEM, LLC
P. O. Box 4699
Oak Ridge, TN 37831-7468

**CERTIFIED MAIL 7006 2150 0005 3508 0349
RETURN RECEIPT REQUESTED**

Anthony Buhl
Foster Wheeler Environmental Corporation
100 WIPP Rd.
Lenoir City, TN 37771

**CERTIFIED MAIL 7006 2150 0005 3508 0332
RETURN RECEIPT REQUESTED**

RE: Recognition of a Class 1 Modification
Facility: U.S. DOE, Oak Ridge National Laboratory (ORNL) and
TRU Waste Processing Facility (WPF)
Location: Oak Ridge, Tennessee
Units: Containers (Storage)
EPA I.D. No.: TN1 89 009 0003
Permit No.: TNHW-097
Modification Number: 22 (A-816)

Dear Messrs. McCracken, Frye, Jones, and Buhl:

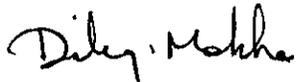
Enclosed is a copy of the Class 1 modification which applies to the above referenced permit. This modification is in accordance with Tennessee Hazardous Waste Management Rule 1200-1-11-.07(9)(c).

Messrs. McCracken, Frye, Jones, and Buhl
May 3, 2007
Page 2

The Class 1 modification involves administrative and informational changes pertaining to two storage units at the Transuranic Waste Processing Center and addresses changes to the description for T1-Macroencapsulation in Attachment 8.

If you have any questions, you can contact me at (615) 532-0821.

Sincerely,



Dilraj Mokha
Treatment, Storage and Disposal Section
Hazardous Waste Program

cc: Mr. Jon Johnston, Chief, RCRA Branch, EPA, Region 4
Mr. Larry Cook, Knoxville Field Office, DSWM
Mr. John Owsley, DOE Oversight
Mr. Bill Krispin, Manager, Permitting Sections, DSWM
Ms. Jamie Burroughs, Manager, TSD Section, DSWM
Ms. Angela Ivory, TSD Section, DSWM

State of Tennessee
Department of Environment and
Conservation
Division of Solid Waste Management

Hazardous Waste Management
Program
5th Floor, L & C Tower
401 Church Street
Nashville, TN 37243-1535

**MODIFICATION TO
HAZARDOUS WASTE MANAGEMENT FACILITY PERMIT**

Permittee: U.S. Department of Energy, Bechtel Jacobs Company LLC, WESKEM, LLC, and Foster Wheeler Environmental Corp.
Facility Name: Oak Ridge National Laboratory
Owner and Operator: U.S. Department of Energy
Co-Operators: Bechtel Jacobs Company LLC, WESKEM, LLC, and Foster Wheeler Environmental Corp.
Location: Oak Ridge National Laboratory, Oak Ridge, TN 37831
EPA I. D. Number: TN1 89 009 0003
Permit Number: TNHW-097

Type: Transuranic Storage Areas
Units: RH-TRU Buildings 7855, 7883, & 7884;
CH-TRU Buildings 7572, 7574, 7576, 7577, 7580, 7842, 7878, 7879, and 7823
Owner and Operator: U.S. Department of Energy
Co-Operators: Bechtel Jacobs Company LLC and WESKEM, LLC

AND

Type: CH and RH Storage Areas
Units: WPF-1 (CHSA), WPF-2 (Second Floor WPF), WPF-3 (Drum Aging Criteria (DAC)), WPF-4 (First Floor WPF), and WPF-5 Container Storage Area (CSA), T-1 Macroencapsulation, T-2 Amalgamation Treatment, and T-3 Solidification/Stabilization Treatment
Owner and Operator: U. S. Department of Energy
Co-Operator: Foster Wheeler Environmental Corp.
MODIFICATION TYPE: Class 1
MODIFICATION NUMBER: 22 (A-816)

Pursuant to the Tennessee Hazardous Waste Management Act of 1977, as amended (Tennessee Code Annotated 68, Chapter 212, Part 1) and the regulations promulgated thereunder by the Tennessee Solid Waste Disposal Control Board (found at Tennessee Rule Chapter 1200-1-11), hazardous waste management facility permit number TNHW-097 issued to U.S. DOE on September 30, 1997, is hereby modified, pursuant to Rule 1200-1-11-.07(9)(c), as follows:

Class 1 - Involves deleting the number of portable containers that can be used to store in WPF 3 (Drum Aging Criteria Area) reflected in Attachment 5 (page 5-1-6) and in Attachment 7 (page 7-26); and in WPF 5 (Container Storage Area) reflected in Attachment 7 (page 7-26). There is no change in the permitted capacity or management of these units. It also addresses changes to the description for T1-Macroencapsulation in Attachment 8 (page 8-1).

This permit modification is further subject to and conditioned upon the terms, conditions, limitations, standards, and schedules contained in or specified in the attachment(s) which are a part of this modification. This modification is hereby made a part of Permit Number: TNHW-097, EPA ID Number: TN1 89 009 0003. The Class 1 modification is effective as of April 9, 2007, and shall remain in effect until September 30, 2007, unless continued, revoked and reissued, or terminated under Rule 1200-1-11-.07(9). Failure to comply with the terms of this modification shall constitute a violation of the Permit.

May 3, 2007
Date



Mike Apple, Director
Division of Solid Waste Management

Rec'd 3-19-07

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ca? Buhl
Alst #11



**STATE OF TENNESSEE
DEPARTMENT OF ENVIRONMENT AND CONSERVATION
Division of Solid Waste Management
Fifth Floor, L & C Tower
401 Church Street
Nashville, Tennessee 37243-1535**

March 9, 2007

Stephen H. McCracken
U.S. Department of Energy
Post Office Box 2001
Oak Ridge, Tennessee 37830

**CERTIFIED MAIL 7006 2150 0005 3507 7783
RETURN RECEIPT REQUESTED**

Charlie Frye
Bechtel Jacobs Company LLC
Post Office Box 2001
P O Box 4699
Oak Ridge, TN 37831-7119

**CERTIFIED MAIL 7006 2150 0005 3507 7752
RETURN RECEIPT REQUESTED**

Larry Jones
WESKEM, LLC
P. O. Box 4699
Oak Ridge, TN 37831-7468

**CERTIFIED MAIL 7006 2150 0005 3507 7769
RETURN RECEIPT REQUESTED**

Anthony Buhl
Foster Wheeler Environmental Corporation
100 WIPP Rd.
Lenoir City, TN 37771

**CERTIFIED MAIL 7006 2150 0005 3507 7776
RETURN RECEIPT REQUESTED**

RE: Temporary Authorization for a Class 3 Modification
Facility: U.S. DOE, Oak Ridge National Laboratory (ORNL) and
TRU Waste Processing Facility (WPF)
Location: Oak Ridge, Tennessee
Units: Containers (Storage)
Installation ID Nos.: TN1 89 009 0003
Permit No.: TNH-097

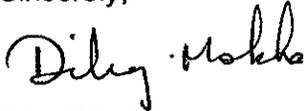
Dear Messrs. McCracken, Frye, Jones, and Buhl:

The Division of Solid Waste Management (DSWM) reviewed your Temporary Authorization (TA) request dated February 5, 2007, for adding treatment options and adding storage of mixed waste at the TRU Waste Processing Center (TWPC). The treatment processes include mercury amalgamation and solidification of liquids.

McCracken, Frye, Jones, and Buhl
March 9, 2007
Page 2

In accordance with Tennessee Hazardous Waste Management Rule 1200-1-11-.07(9)(c)5, DSWM is granting this temporary authorization request and it becomes effective as of **March 9, 2007** and shall remain in effect until **September 6, 2007**. If you have any questions, please contact me at (615) 532-0821.

Sincerely,



Dilraj Mokha
Treatment, Storage and Disposal Section
Hazardous Waste Program

cc: Mr. Jon Johnston, Chief, RCRA Branch, EPA, Region 4
Mr. Larry Cook, Knoxville Field Office, DSWM
Mr. John Owsley, DOE Oversight
Mr. Bill Krispin, Manager, Permitting Sections, DSWM
Ms. Jamie Burroughs, Manager, TSD Section, DSWM
Ms. Angela Ivory, TSD Section, DSWM

State of Tennessee
Department of Environment and
Conservation
Division of Solid Waste Management

Hazardous Waste Management
Program
5th Floor, L & C Tower
401 Church Street
Nashville, TN 37243-1535

**TEMPORARY AUTHORIZATION FOR
HAZARDOUS WASTE MANAGEMENT FACILITY PERMIT**

Permittee: U.S. Department of Energy, Bechtel Jacobs Company LLC, WESKEM, LLC, and Foster Wheeler Environmental Corp.

Facility Name: Oak Ridge National Laboratory

Owner and Operator: U.S. Department of Energy

Co-Operators: Bechtel Jacobs Company LLC, WESKEM, LLC, and Foster Wheeler Environmental Corp.

Location: Oak Ridge National Laboratory, Oak Ridge, TN 37831

EPA I. D. Number: TN1 89 009 0003

Permit Number: TNH-097

Type: Transuranic Storage Areas

Units: RH-TRU Buildings 7855, 7883, & 7884;

CH-TRU Buildings 7572, 7574, 7576, 7577, 7580, 7842, 7878, 7879, and 7823

Owner and Operator: U.S. Department of Energy

Co-Operators: Bechtel Jacobs Company LLC and WESKEM, LLC

AND

Type: CH and RH Storage Areas

Units: WPF-1 (CHSA), WPF-2 (Second Floor WPF), WPF-3 (Drum Aging Criteria (DAC)), WPF-4 (First Floor WPF), and WPF-5 Container Storage Area (CSA), T-1 Macroencapsulation, T-2 Amalgamation Treatment, and T-3 Solidification/Stabilization Treatment

Owner and Operator: U. S. Department of Energy

Co-Operator: Foster Wheeler Environmental Corp.

Modification Type: Temporary Authorization for a Class 3 Modification

Pursuant to the Tennessee Hazardous Waste Management Act of 1977, as amended (Tennessee Code Annotated 68, Chapter 212, Part 1) and the regulations promulgated thereunder by the Tennessee Solid Waste Disposal Control Board (found at Tennessee Rule Chapter 1200-1-11), a temporary authorization is approved for hazardous waste management facility permit number TNH-097 issued to U.S. DOE on September 30, 1997, pursuant to Rule 1200-1-11-.07(9)(c), as follows:

Temporary Authorization - Addition of treatment options and additional storage of mixed waste at the TRU Waste Processing Center (TWPC). The treatment processes include mercury amalgamation and solidification of liquids.

These additions have been incorporated in the permit and are reflected in the Permit Page, Section III (Specific Conditions for

Storage in Containers), Section IV (Specific Conditions For Physical and Chemical Treatment), and Attachments 1, 3, 6, 7, 8, and Appendix 5-1. Appendix 8-2 has been added to describe examples of Nochar Products. In Appendix 5-1, Figure 5-24 has been revised and Figure 5-27 has been deleted. Two figures namely, Figure 5-27 (WPF Container Storage Area (CSA) and Figure 5-28 (WPF Drum Aging Criteria Area) have been added.

This temporary authorization is further subject to and conditioned upon the terms, conditions, limitations, standards, and schedules contained in or specified in the attachments which are a part of this temporary authorization. This temporary authorization is hereby made a part of Permit Number: TNHW-097, Installation ID Number: TN1 89 009 0003, and is effective as of **March 9, 2007**, and shall remain in effect until **September 6, 2007**, unless reissued under Rule 1200-1-11-.07(9). Failure to comply with the terms of this temporary authorization shall constitute a violation of the Permit.

March 9, 2007
Date



Mike Apple
Director



**STATE OF TENNESSEE
DEPARTMENT OF ENVIRONMENT AND CONSERVATION
Division of Solid Waste Management
Fifth Floor, L & C Tower
401 Church Street
Nashville, Tennessee 37243-1535**

February 16, 2007

Stephen H. McCracken
U.S. Department of Energy
Post Office Box 2001
Oak Ridge, Tennessee 37830

**CERTIFIED MAIL 7006 2150 0005 3507 7851
RETURN RECEIPT REQUESTED**

Charlie Frye
Bechtel Jacobs Company LLC
Post Office Box 2001
P O Box 4699
Oak Ridge, TN 37831-7119

**CERTIFIED MAIL 7006 2150 0005 3507 7844
RETURN RECEIPT REQUESTED**

Larry Jones
WESKEM, LLC
P. O. Box 4699
Oak Ridge, TN 37831-7468

**CERTIFIED MAIL 7006 2150 0005 3507 7820
RETURN RECEIPT REQUESTED**

Anthony Buhl
Foster Wheeler Environmental Corporation
100 WIPP Rd.
Lenoir City, TN 37771

**CERTIFIED MAIL 7006 2150 0005 3507 7837
RETURN RECEIPT REQUESTED**

RE: Recognition of Class 1 Modification
Facility: U.S. DOE, Oak Ridge National Laboratory (ORNL) and
TRU Waste Processing Facility (WPF)
Location: Oak Ridge, Tennessee
Units: Containers (Storage)
Installation ID Nos.: TN1 89 009 0003
Permit No.: TNHW-097
Modification Number: 21 (A-807)

Dear Messrs. McCracken, Frye, Jones, and Buhl:

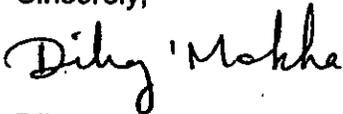
Enclosed is a copy of the Class 1 modification which applies to the above referenced permit. This modification is in accordance with Tennessee Hazardous Waste Management Rule 1200-1-11-

Messrs. McCracken, Frye, Jones, and Buhl
February 16, 2007
Page 2

.07(9)(c). The Class 1 modification reflects changes in Attachment 3, Table 3-14 (Macroencapsulation Inspection Logsheet). The Table has been reformatted to make it easier for the operations personnel to ensure that adequate inspections are completed and documented. Please note that Table 3-14 prior to this modification was titled: Macroencapsulation Treatment Unit Inspection Items.

If you have any questions, please contact me at (615) 532-0821.

Sincerely,



Dilraj Mokha
Treatment, Storage and Disposal Section
Hazardous Waste Program

cc: Mr. Jon Johnston, Chief, RCRA Branch, EPA, Region 4
Ms. Jamie Burroughs, Manager, TSD Section, DSWM
Mr. Bill Krispin, Manager, Permitting Sections, DSWM
Mr. Larry Cook, Knoxville Field Office, DSWM
Mr. John Owsley, DOE Oversight
Ms. Angela Ivory, TSD Section, DSWM



**STATE OF TENNESSEE
DEPARTMENT OF ENVIRONMENT AND CONSERVATION
Division of Solid Waste Management
Fifth Floor, L & C Tower
401 Church Street
Nashville, Tennessee 37243-1535**

January 25, 2007

Stephen H. McCracken
U.S. Department of Energy
Post Office Box 2001
Oak Ridge, Tennessee 37830

**CERTIFIED MAIL 7006 0100 0005 5070 9288
RETURN RECEIPT REQUESTED**

Charlie Frye
Bechtel Jacobs Company LLC
Post Office Box 2001
P O Box 4699
Oak Ridge, TN 37831-7119

**CERTIFIED MAIL 7006 0100 0005 5070 9295
RETURN RECEIPT REQUESTED**

Larry Jones
WESKEM, LLC
P. O. Box 4699
Oak Ridge, TN 37831-7468

**CERTIFIED MAIL 7006 0100 0005 5070 9301
RETURN RECEIPT REQUESTED**

Anthony Buhl
Foster Wheeler Environmental Corporation
100 WIPP Rd.
Lenoir City, TN 37771

**CERTIFIED MAIL 7006 0100 0005 5070 9318
RETURN RECEIPT REQUESTED**

**RE: Approval of Class 2 Modification for Mixed Waste Storage
Facility: U.S. DOE, Oak Ridge National Laboratory (ORNL) and
TRU Waste Processing Facility (WPF)
Location: Oak Ridge, Tennessee
Units: Containers (Storage)
Installation ID Nos.: TN1 89 009 0003
Permit No.: TNHW-097
Modification Number: 20 (C-119)**

Dear Messrs. McCracken, Frye, Jones, and Buhl:

Enclosed is a copy of the Class 2 modification which applies to the above referenced permit. This modification is in accordance with Tennessee Hazardous Waste Management Rule 1200-1-11-.07(9)(c). The Class 2 modification reflects the addition of Foster Wheeler Environmental Corporation (FWENC) to Permit Number TNHW-097, as a co-operator. This will allow FWENC

to operate Transuranic (TRU)/Alpha Low-Level Waste (LLW) Remediation facility, which is referred to as the TRU Waste Processing Facility (WPF). It also allows temporary storage of TRU waste determined to be mixed waste during final characterization at the FWENC facility. This modification allows the transfer of WPF site procedures, operations, and training into this permit from permit number TNHW-100. These changes are reflected throughout the permit.

The approval of the Class 2 modification was preceded by the Division of Solid Waste Management (DSWM) approving a temporary authorization for 180 days effective from **March 6, 2006** until **September 6, 2006**, and an extension to this temporary authorization effective until **March 6, 2007**. The temporary authorization approved FWENC as both the co-owner and co-operator of the WPF portion of the permit. Since then a Class ¹ modification was approved with FWENC as a co-operator only, on January 10, 2007, as DOE had assumed ownership of the WPF site. Because of this change, the requested language in the requested modification such as in Attachment 5 has been changed. Requested deletion of financial requirements language for FWENC will be handled as a state initiated modification after termination of the separate FWENC permit No. TNHW-100.

If you have any questions, please contact Ms. Dilraj Mokha of my staff at (615) 532-0821.

Sincerely,



Jamie L. Burroughs, Manager
Treatment, Storage and Disposal Section
Hazardous Waste Program

cc: Mr. Jon Johnston, Chief, RCRA Branch, EPA, Region 4
Mr. Larry Cook, Knoxville Field Office, DSWM
Mr. John Owsley, DOE Oversight
Mr. Bill Krispin, Manager, Permitting Sections, DSWM
Ms. Angela Ivory, Treatment, Storage and Disposal Section, DSWM
Ms. Dilraj Mokha, Treatment, Storage and Disposal Section, DSWM

State of Tennessee
Department of Environment and
Conservation
Division of Solid Waste Management

Hazardous Waste Management
Program
5th Floor, L & C Tower
401 Church Street
Nashville, TN 37243-1535

**MODIFICATION TO
HAZARDOUS WASTE MANAGEMENT FACILITY PERMIT**

Permittee: U.S. Department of Energy, Bechtel Jacobs Company LLC, WESKEM, LLC, and Foster Wheeler Environmental Corp.

Facility Name: Oak Ridge National Laboratory

Owner and Operator: U.S. Department of Energy

Co-Operators: Bechtel Jacobs Company LLC, WESKEM, LLC, and Foster Wheeler Environmental Corp.

Location: Oak Ridge National Laboratory, Oak Ridge, TN 37831

EPA I. D. Number: TN1 89 009 0003

Permit Number: TNHW-097

Type: Transuranic Storage Areas

Units: RH-TRU Buildings 7855, 7883, & 7884;

CH-TRU Buildings 7572, 7574, 7576, 7577, 7580, 7842, 7878, 7879, and 7823

Owner and Operator: U.S. Department of Energy

Co-Operators: Bechtel Jacobs Company LLC and WESKEM, LLC

AND

Type: CH and RH Storage Areas

Units: WPF-1 (CHSA), WPF-2 (Second Floor WPF), WPF-3 (Drum Aging Criteria (DAC)), WPF-4 (First Floor WPF), and WPF-5 Container Storage Area (CSA), and T-1 Macroencapsulation

Owner and Operator: U. S. Department of Energy

Co-Operator: Foster Wheeler Environmental Corp.

MODIFICATION TYPE: Class 2

MODIFICATION NUMBER: 20 (C-119)

Pursuant to the Tennessee Hazardous Waste Management Act of 1977, as amended (Tennessee Code Annotated 68, Chapter 212, Part 1) and the regulations promulgated thereunder by the Tennessee Solid Waste Disposal Control Board (found at Tennessee Rule Chapter 1200-1-11), hazardous waste management facility permit number TNHW-097 issued to U.S. DOE on September 30, 1997, is hereby modified, pursuant to Rule 1200-1-11-.07(9)(c), as follows:

Class 2 Modification: - 1. This will allow FWENC to operate Transuranic (TRU)/Alpha Low-Level Waste (LLW) Remediation facility, which is referred to as the TRU Waste Processing Facility (WPF). It will also allow temporary storage of TRU waste determined to be mixed waste during final characterization at the FWENC facility. The purpose of this modification is to transfer the WPF site procedures,

operations, and training into this permit from permit number TNHW-100. These additions have been incorporated in the permit and are reflected in the Permit Page, Section I (Standard Conditions), Section II (General Facility Conditions), Section III (Specific Conditions For Storage in Containers), Section IV (Specific Conditions For Physical Treatment), and Attachments 1 through 7.

2. Corrected the typographical correction on the permit page and corrected the Temporary Authorization date from February 3, 2006 to March 6, 2006.
3. Deleted the Waste Processing Facility listed under Transuranic Storage Areas in the permit page.
4. Added WPF units to table on page 1-4 and added WPF Waste Characterization on page 1-28 as a new section 1-2g, in Attachment 1.
5. Revised waste D003 reactivity classification from "No" to "Yes" under RH-TRU units in Table 1-1, in Attachment 1.
6. Changed RCRA storage areas on page 3-22 in Attachment 3.
7. Added unit description to Table 3-8 in Attachment 3.
8. Revised the Contingency Plan in Attachment 5 and updated pages to reflect FWENC as a co-operator only.
9. Added the evacuation routes for the TRU/ALPHA Waste treatment site in Attachment 5 (Contingency Plan) as Map 2.
10. Added three drawings pertaining to the general arrangements (first and second floor plan) and the site grading plan of the WPF namely Figures 7-24, 7-25, and 7-26, in Attachment 7 (Container Management).
11. Allowed boxes to be stacked 2 feet high on page 7-8 in Attachment 7.

This permit modification is further subject to and conditioned upon the terms, conditions, limitations, standards, and schedules contained in or specified in the attachment(s) which are a part of this modification. This modification is hereby made a part of Permit Number: TNHW-097, EPA ID Number: TN1 89 009 0003. The Class 2 modification is effective as of the date below, and shall remain in effect until September 30, 2007, unless continued, revoked and reissued, or terminated under Rule 1200-1-11-.07(9). Failure to comply with the terms of this modification shall constitute a violation of the Permit.

January 25, 2007
Date



Mike Apple
Director

RESPONSE TO COMMENTS

This document has been prepared in accordance with Tennessee Rule 1200-1-11-.07(7)(j). It has resulted from the Tennessee Division of Solid Waste Management's proposal to issue a Class 2 permit modification to U.S. Department of Energy (DOE), Bechtel Jacobs Company LLC, WESKEM LLC, and Foster Wheeler Environmental Corp., EPA I.D. Number TN1 89 009 0003, located at Oak Ridge National Laboratory, Oak Ridge, Tennessee, with a Tennessee Permit Number TNHW-097. The purpose of this Class 2 modification is to incorporate TRU Waste Processing Center (TWPC) for other on-site TRU waste storage facilities and add Foster Wheeler Environmental Corporation (FWENC) as a co-operator into Permit Number TNHW-097. This modification also includes the revision to the contingency plan.

Section A of this document describes the efforts made by DOE to obtain public input. Section B summarizes and responds to all significant comments received.

A. Public Involvement Opportunities

A public notice was prepared by DOE of its Class 2 modification request, as required by Tennessee Rule 1200-1-11-.07(9)(c)5(ii)(II)-(V). This notice was published in the Knoxville News-Sentinel and The Oak Ridger on August 22, 2006; and in the News-Herald and Roane County News, on August 23, 2006.

The public notice advised the public that a copy of the Class 2 permit modification request was available for review at the DOE Information Center, 475 Oak Ridge Turnpike, Oak Ridge, Tennessee. The public notice also established a 60-day comment period, which began on August 22, 2006, and ended on October 21, 2006. The public notice also stated that a public meeting would be held on September 14, 2006 at 6:00 p.m., by DOE, Bechtel Jacobs Company LLC, WESKEM LLC, and Foster Wheeler Environmental Corporation at the DOE Information Center, Main Conference Room, 475 Oak Ridge Turnpike, Oak Ridge, Tennessee, and described how interested persons could comment in writing on the proposed action.

B. Public Comment/Response Summary

DOE and one member of the public who attended the public meeting, had comments. No written comments were received from the public during this comment period. The response to the comments are addressed below.

RESPONSE TO COMMENTS

COMMENTS FROM DOE AND RESPONDED BY FOSTER WHEELER ENVIRONMENTAL CORP. (FWENC) UNLESS OTHERWISE NOTED

1. **Comment:** The document is not in "track changes" format, so it is very difficult to recognize what changes are being made to the previous version, especially for a member of the public.

FWENC Response: The document that was provided is what TDEC approved under the TA which is what is being requested under the Class 2 permit modification. The approved TA provided by TDEC did not show the changes from the original permit.

2. **Comment:** Cover page - The USDOE is shown as being the owner and FWENC is shown as being the co-owner/co-operator. Who is the operator?

FWENC Response: FWENC is a co-operator under permit number TNHW-097 along with Bechtel Jacobs and WESKEM. The permit (on page 2) clarifies roles and responsibilities of DOE and all co-operators (FWENC, BJC, and WESKEM) with respect to the permitted facility.

3. **Comment:** III-3 – FW has asked to change the definition of "weekly" to once in a calendar week only for the WPF. This is inconsistent with the inspection schedule for the rest of the permittees and has a net result of allowing nearly two weeks between inspection dates. This defeats the purpose for performing weekly inspections and unreasonably compromises safety.

FWENC Response: The definition of weekly is not defined elsewhere in the permit. This is to clarify what the term weekly means. This does not compromise safety as FWENC operations personnel are in the storage units on almost a daily basis, and any potential spills or releases would be observed and rectified at that time.

State Response: Any inspection conducted on a "weekly" basis is required to be conducted any time before the end of the same day of week of the subsequent calendar week. For example, a weekly inspection conducted on Monday must be re-conducted before the end of Monday of the subsequent calendar week. If the owner, operator or generator conducts a weekly inspection on Monday and chooses to re-conduct the weekly inspection on Friday of the same week then the next weekly inspection must be conducted before the end of Friday of the subsequent calendar week. Because the definition of weekly is consistent to that in a standard dictionary, it is not necessary to add to the final sentence to the permit.

4. **Comment:** III-4 F.f. – Molten Valley needs to be changed to Melton Valley.

FWENC Response: This was not changed by this permit modification, but was an existing error.

RESPONSE TO COMMENTS (cont'd)

State Response: Change made.

5. **Comment:** Att. 1, 1-5 – The permit states that CH-TRU waste will be shipped to the facility from off-site. Is there any limit on off-site shipments of TRU waste to the ORR?

FWENC Response: There is no limit on off-site shipments of TRU waste to the ORR for processing in the TWPC. However, there are also no plans at this time to bring waste to the ORR from offsite to be processed. In the event that a small amount of waste is required to be shipped to the ORR from an offsite facility to be processed here, the coverage provided by the permit would be needed.

State Response: Limits on off-site wastes are limited by the language on page 1-2 of Attachment 1 of the permit.

6. **Comment:** Att. 1, 1-2g – grammatical error: The additional waste characterization, as well as the sorting and segregation processes, performed at the WPF, are is expected to identify...

FWENC Response: Agreed.

State Response: Change has been made.

7. **Comment:** Att. 1, p.1-21 – there is a statement indicating that the LLMW WAC are summarized in Table 1-8. This table does not appear to be in the document.

FWENC Response: Table 1-8 is not in this document as it is not being changed by the Class 2 permit modification.

8. **Comment:** Att. 1 – A majority of Attachment 1 appears to be missing because the page numbers jump several times. Is this an incomplete submittal or have there been changes that affect the page numbering?

FWENC Response: This document contains only those pages affected by the TA and Class 2 permit modification.

9. **Comment:** Att. 2, 2-1a – the only point of access to the facility via a public roadway is at the intersection of the gated, restricted access road and SR95. Is the response time from LSS sufficient? Is there any another way in/out of the facility if an event happens that blocks the sole access road?

FWENC Response: The response time is sufficient, as numerous drills have been conducted to demonstrate. Additionally, there is another egress from the facility if the entrance was blocked. The facility would be evacuated through the ORNL locked gate through which containers are brought to the site.

RESPONSE TO COMMENTS (cont'd)

10. **Comment:** Att. 4, p.4-3 – The training matrix indicates that WPF training is not applicable to the LSS, yet the LSS is listed as the primary emergency response coordinator in Figure 1 and in Attachment 5. Shouldn't the LSS receive training that is specific to the WPF?

FWENC Response: The TRU Waste Processing Center (TWPC) has on-site positions that can be directly correlated to those identified in Attachment 4, Figure 1 with the exception of LSS and therefore the position does not apply directly to the TWPC. The TWPC is included within the ORNL local emergency management process where the LSS has an interface with TWPC, but does not need specific site training to perform the LSS responsibilities because a Local Emergency SQUAD (LES) would be dispatched to the TWPC. The LES personnel are familiar with the site and hazards. Additionally, the TWPC provides direct support to ensure LES personnel are aware of the specific hazards at the time of a response.

11. **Comment:** Att. 4, 4-1b – The training program states that “a minimum of 24 hours of health and safety training for hazardous waste operations and activities is initially completed by the hazardous and mixed waste management personnel. An 8-hour annual refresher is then rescheduled.” Table 4-1 has footnotes indicating that the WPF complies with OSHA requirements in 29 CFR 1910.120(p). Since the existing training matrix already mirrors the OSHA requirement, is there a reason for the footnote?

FWENC Response: Yes, the FWENC Training Manager has stated that based on his discussions with ORNL training groups this is a different section of OSHA than what ORNL is complying with.

12. **Comment:** Att. 6, 6-1d – The permit states that closure of the WPF will be initiated approximately 5 years from the permit date, or with 90 days after receipt of final mixed waste. This is inconsistent with the 20-year closure time specified for the other units in this permit.

FWENC Response: This information is specific to WPF.

13. **Comment:** Att. 6, 6-5 – The permit states that documentation of financial assurance for the closure cost estimate will be provided prior to the operation of the facility. Is the facility currently operating? If so, shouldn't the closure cost and financial assurance documents be part of the permit application?

FWENC Response: These documents were submitted with the TA and were approved by TDEC. A contract modification has been signed which makes DOE the sole owner of the facility. A Class 1 permit modification is being prepared to reflect this change and request that these documents be returned as federal facilities do not require closure cost estimates or financial assurance documents.

State Response: The Class 1 modification was approved reflecting DOE as the sole owner of the facility.

RESPONSE TO COMMENTS (cont'd)

14. **Comment:** Att. 7, Table 7-1 – the table shows that 7842 and 7878 have been demolished, but they are still shown as active storage units on page III-1. Shouldn't they be removed?

FWENC Response: 7842 and 7878 were RCRA-closed in December 2004. Another permit modification will be submitted to remove these units from this permit.

15. **Comment:** Att. 7 – Section 7-1(b)1 says that no testing for free liquids has been done on the TRU waste. Page 1-5 and 1-7 state that the TRU containers generated prior to 1986 could have up to 1% free liquid. Table 7-2 states that spill pallets will be used to provide spill pallets for all containers with free liquids. Since FW doesn't know which containers have free liquids, and which ones don't, does this mean that all containers will be staged on spill pallets? What about large containers such as B-25 boxes? Page 7-26 states that drums and boxes will only be externally inspected, yet a B-25 could contain up to 38 gallons of free liquid, according to the permit language. The following language should be added to Attachment 7 page 7-26 at the end of the Waste Receipt section:

FWENC Response: FWENC will use available information including the 2109s and the Acceptable Knowledge documents to screen containers so that when containers come in they will be appropriately placed on secondary containment. For drums, the containers initially go through Non-Destructive Examination which identifies liquids. If liquids are identified the containers will be placed on spill pallets.

16. **Comment:** Att. 7, p.7-25 – The permit says “the CH waste will be processed in the segmented steps depicted in Figure 8-1, *Overall Block Flow Diagram for CH Operations.*”

FWENC Response: This figure does not appear to be included in the permit. This sentence should be deleted.

17. **Comment:** Att. 7, p.7-26 – Page III-1 indicates that there is one DAC unit (WPF-3), and one CSA (WPF-5), yet this page indicates that there are two physical DAC units, and two physical CSA units. This should be clearly indicated in III-1.

FWENC Response: We have defined the DAC and the CSA as one unit each, with several storage containers within each unit.

18. **Comment:** Att. 7 – There is no description or definition of the CHSA in this section.

FWENC Response: The first sentence on page 7-26 should be re-written as follows: Waste Receipt. CH drums and boxes will be received at the Contact Handled Staging Area (CHSA) facility.

19. **Comment:** Table 7-1-1 list several drawings of the WPF, but there are no drawings included in the submittal.

FWENC Response: The drawings were submitted to TDEC in the TA; however, they were inadvertently not included with the information submitted to the reading rooms. This was corrected September 19, 2006.

RESPONSE TO PUBLIC COMMENTS

1. **Comment:** Please clarify what will be done under the permit modification.

FWENC Response: We are adding Foster Wheeler Environmental Corp. as a co-operator under the permit which will allow them to send and receive waste from other ORNL units authorized under this permit and to store the waste on their site while they prepare it for shipment to WIPP. Once the waste is prepared it will be returned to ORNL authorized units for storage prior to being shipped to WIPP for disposal. Foster Wheeler will prepare any LLW or LLMW for direct shipment to approved disposal facilities.



**STATE OF TENNESSEE
DEPARTMENT OF ENVIRONMENT AND CONSERVATION
Division of Solid Waste Management
Fifth Floor, L & C Tower
401 Church Street
Nashville, Tennessee 37243-1535**

January 10, 2007

Stephen H. McCracken
U.S. Department of Energy
Post Office Box 2001
Oak Ridge, Tennessee 37830

**CERTIFIED MAIL 7006 0100 0005 5070 9325
RETURN RECEIPT REQUESTED**

Charlie Frye
Bechtel Jacobs Company LLC
Post Office Box 2001
P O Box 4699
Oak Ridge, TN 37831-7119

**CERTIFIED MAIL 7006 0100 0005 5070 9332
RETURN RECEIPT REQUESTED**

Larry Jones
WESKEM, LLC
P. O. Box 4699
Oak Ridge, TN 37831-7468

**CERTIFIED MAIL 7006 0100 0005 5070 9264
RETURN RECEIPT REQUESTED**

Anthony Buhl
Foster Wheeler Environmental Corporation
100 WIPP Rd.
Lenoir City, TN 37771

**CERTIFIED MAIL 7006 0100 0005 5069 4737
RETURN RECEIPT REQUESTED**

RE: Approval of Class 1 Modification
U.S. DOE, Oak Ridge National Laboratory
EPA ID No.: TN1 89 009 0003
Permit Number: TNHW-097
Modification Number: 19 (A-804)

Dear Messrs. McCracken, Frye, Jones, and Buhl:

Enclosed is a copy of the Class 1 modification which applies to the above referenced permit. This modification is in accordance with Tennessee Hazardous Waste Management Rule 1200-1-11-.07(9)(c). The Class 1 modification has been modified as follows: (a) Added macroencapsulation treatment to treat wastes that are restricted from land disposal. (b) Removed Foster Wheeler Environmental Corporation (FWENC) as a co-owner under this permit. (c) Added WESKEM, LLC

as a co-operator for Building 7823. (d) Changed FWENC facility name from Waste Processing Facility (WPF) to the TRU Waste Processing Center (TWPC) and as the name change is not reflected in the permit, WPF means the same as TWPC.

The Division does not approve the request for returning the Financial Assurance (Letter of Credit) and Proof of Liability Insurance to FWENC at this stage. This can only be approved once the permit (TNHW-100) issued to Foster Wheeler Environmental Corporation is terminated. The Financial Requirements in subsection II.N, the Restriction on Ownership of the Facility in subsection II.S, and Closure, Post-Closure, and Financial Requirements in Attachment 8, will still remain in effect and will not be removed from this permit until permit (TNHW-100) is terminated.

If you have any questions, please contact Ms. Dilraj Mokha of my staff at (615) 532-0821.

Sincerely,



Jamie L. Burroughs, Manager
Treatment, Storage, and Disposal Section
Hazardous Waste Program

cc: Mr. Jon Johnston, Chief, RCRA Branch, EPA, Region 4
Mr. John A. Owsley, DOE Oversight, TDEC, Oak Ridge
Mr. Larry Cook, Manager, Knoxville EAC, DSWM
Ms. Angela Ivory, Treatment, Storage, and Disposal Section, DSWM
Ms. Dilraj K. Mokha, Treatment, Storage, and Disposal Section, DSWM

State of Tennessee
Department of Environment and
Conservation
Division of Solid Waste Management

Hazardous Waste Management
Program
5th Floor L & C Tower
401 Church Street
Nashville, Tennessee 37243-1535

**MODIFICATION TO
HAZARDOUS WASTE MANAGEMENT FACILITY PERMIT**

PERMITTEE: U.S. DOE, Bechtel Jacobs Company LLC, WESKEM, LLC, and Foster Wheeler Environmental Corp.

FACILITY: Oak Ridge National Laboratory

LOCATION: Oak Ridge, Tennessee

EPA ID NO.: TN1 89 009 0003

PERMIT NO.: TNHW-097

OWNER/OPERATOR: U.S. DOE

CO-OPERATORS: Bechtel Jacobs Company LLC, WESKEM, LLC, and Foster Wheeler Environmental Corp.

TYPE: Transuranic Storage Areas

UNITS: RH-TRU Buildings 7855, 7883, & 7884; CH-TRU Buildings 7572, 7574, 7576, 7577, 7580, 7823, 7842, 7878, & 7879

CO-OPERATOR: Foster Wheeler Environmental Corp.

TYPE: CH and RH Storage Areas

UNITS: WPF Units: WPF-1 (CHSA), WPF-2 (Second Floor WPF), WPF-3 (Drum Aging Criteria (DAC)), WPF-4 (First Floor WPF), WPF-5 Container Storage Area (CSA), and T-1 Macroencapsulation

MODIFICATION TYPE: Class 1

MODIFICATION NUMBER : 19 (A-804)

Pursuant to the Tennessee Hazardous Waste Management Act of 1977, as amended (Tennessee Code Annotated 68, Chapter 212, Part 1) and the regulations promulgated thereunder by the Tennessee Solid Waste Disposal Control Board (found at Tennessee Rule Chapter 1200-1-11), hazardous waste management facility permit number TNHW-097 issued to U.S. DOE on September 30, 1997, is hereby modified, pursuant to Rule 1200-1-11-.07(9)(c), as follows:

- Class 1 modification:
- (a) Added macroencapsulation treatment to treat wastes that are restricted from land disposal.
 - (b) Removed Foster Wheeler Environmental Corporation (FWENC) as a co-owner under this permit.
 - (c) Added WESKEM, LLC as a co-operator for Building 7823.

- (d) Changed FWENC facility name from Waste Processing Facility (WPF) to the TRU Waste Processing Center (TWPC) and as the name change is not reflected in the permit, WPF means the same as TWPC.

This permit modification is further subject to and conditioned upon the terms, conditions, limitations, standards, and schedules contained in or specified in the attachment(s) which are a part of this modification. This modification is hereby made a part of Permit Number: TNHW-097, EPA ID Number: TN1 89 009 0003. The Class 1 modification is effective as of the date below, and shall remain in effect until September 30, 2007, unless continued, revoked and reissued, or terminated under Rule 1200-1-11-.07(9). Failure to comply with the terms of this modification shall constitute a violation of the Permit.

January 10, 2007
Date



Mike Apple, Director
Division of Solid Waste Management

*Orig to File
cc: Buhl
Alcott*



**STATE OF TENNESSEE
DEPARTMENT OF ENVIRONMENT AND CONSERVATION
Division of Solid Waste Management
Fifth Floor, L & C Tower
401 Church Street
Nashville, Tennessee 37243-1535**

September 21, 2006

Stephen H. McCracken
U.S. Department of Energy
Post Office Box 2001
Oak Ridge, Tennessee 37830

**CERTIFIED MAIL 7005 0390 0006 6038 7446
RETURN RECEIPT REQUESTED**

Charlie Frye
Bechtel Jacobs Company LLC
Post Office Box 2001
P O Box 4699
Oak Ridge, TN 37831-7119

**CERTIFIED MAIL 7005 0390 0006 6038 7453
RETURN RECEIPT REQUESTED**

Larry Jones
WESKEM, LLC
P. O. Box 4699
Oak Ridge, TN 37831-7468

**CERTIFIED MAIL 7005 0390 0006 6038 7460
RETURN RECEIPT REQUESTED**

Anthony Buhl
Foster Wheeler Environmental Corporation
100 WIPP Rd.
Lenoir City, TN 37771

**CERTIFIED MAIL 7006 0100 0005 5069 5291
RETURN RECEIPT REQUESTED**

**RE: Temporary Authorization Renewal for Mixed Waste Storage
Facility: U.S. DOE, Oak Ridge National Laboratory (ORNL) and
TRU Waste Processing Facility (WPF)
Location: Oak Ridge, Tennessee
Units: Containers (Storage)
Installation ID Nos.: TN1 89 009 0003, TNR 00 000 6981
Permit No.: TNHW-097**

Dear Messrs. McCracken, Frye, Jones, and Buhl:

The Division of Solid Waste Management (DSWM) reviewed your request dated August 29, 2006, for a temporary authorization renewal of 180 days to allow Foster Wheeler Environmental Corporation (FWENC) to operate Transuranic (TRU)/Alpha Low-Level Waste (LLW) Remediation facility, which is referred to as the TRU Waste Processing Facility (WPF). This TA will also allow temporary storage of TRU waste determined to be mixed

McCracken, Frye, Jones, and Buhl
September 21, 2006
Page 2

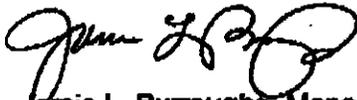
waste during final characterization at the FWENC facility. The purpose of this TA is to transfer the WPF site procedures, operations, and training into this permit from permit number TNHW-100. The initial temporary authorization was issued as a Class 3 modification on March 6, 2006 and was effective from March 6, 2006 until September 6, 2006. The initial temporary authorization proposed to include the addition of a miscellaneous treatment unit to the permit and was classified as a Class 3 modification.

The Class 2 modification was received on August 16, 2006, and it does not include the addition of the miscellaneous treatment unit, thus classifying it as a Class 2 modification. The extension of the initial temporary authorization is necessary to allow completion of the Class 2 modification process. On page III-3, the weekly inspection to be defined as once every calendar week does not meet the criteria of Tennessee Rule 1200-1-11-.07(9)(c)(v)(III) objective. This modification can be requested in a later modification.

In accordance with Tennessee Hazardous Waste Management Rule 1200-1-11-.07(9)(c)5, DSWM is granting approval for the temporary storage of mixed wastes for another 180 days. This temporary authorization renewal becomes effective as of September 7, 2006 and shall remain in effect until March 6, 2007. The modified pages of the permit are included with this letter.

If you have any questions, please contact Ms. Dilraj Mokha of my staff at (615) 532-0821.

Sincerely,



Jamie L. Burroughs, Manager
Treatment, Storage and Disposal Section
Hazardous Waste Program

cc: Mr. Jon Johnston, Chief, RCRA Branch, EPA, Region 4
Mr. Larry Cook, Knoxville Field Office, DSWM
Mr. John Owsley, DOE Oversight
Mr. Bill Krispin, Manager, Permitting Sections, DSWM
Ms. Angela Ivory, Treatment, Storage and Disposal Section, DSWM
Ms. Dilraj Mokha, Treatment, Storage and Disposal Section, DSWM

State of Tennessee
Department of Environment
and Conservation
Division of Solid Waste Management

Hazardous Waste Management Program
5th Floor, L & C Tower
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Nashville, Tennessee 37243-1535

HAZARDOUS WASTE MANAGEMENT PERMIT

Permittee: U.S. Department of Energy, Bechtel Jacobs Company LLC, WESKEM, LLC,
and Foster Wheeler Environmental Corp.

Facility Name: Oak Ridge National Laboratory

Owner and Operator: U.S. Department of Energy

Co-Operators: Bechtel Jacobs Company LLC, WESKEM, LLC, and Foster Wheeler
Environmental Corp.

EPA I. D. Number: TN1 89 009 0003

Permit Number: TNH-097

Type: Transuranic Storage Areas

Units: RH-TRU Buildings 7855, 7883, & 7884;

CH-TRU Buildings 7572, 7574, 7576, 7577, 7580, 7842, 7878, 7879, and 7823

Owner and Operator: U.S. Department of Energy

Co-Operators: Bechtel Jacobs Company LLC and WESKEM, LLC

AND

Type: CH and RH Storage Areas

Units: WPF-1 (CHSA), WPF-2 (Second Floor WPF), WPF-3 (Drum Aging Criteria (DAC)),
WPF-4 (First Floor WPF), and WPF-5 Container Storage Area (CSA), WPF-6
Contact Handled Marshalling Building (CHMB), T-1 Macroencapsulation, T-2
Amalgamation Treatment, and T-3 Solidification/Stabilization Treatment

Owner and Operator: U. S. Department of Energy

Co-Operator: Foster Wheeler Environmental Corp.

Pursuant to the Tennessee Hazardous Waste Management Act, as amended (Tennessee Code Annotated 68-212-101 et seq.) and regulations (Chapter 1200-1-11) promulgated thereunder by the Tennessee Solid Waste Disposal Control Board, a permit is issued to U.S. DOE, Bechtel Jacobs Company LLC, and WESKEM, LLC (hereinafter called the Permittee), to operate hazardous waste storage units for the management of hazardous waste, located in Oak Ridge, Tennessee, Roane County at latitude 35° 55' 039" and longitude 84° 18' 048", and to Foster Wheeler Environmental Corp. (hereinafter called the Permittee), to operate hazardous waste storage units for management of hazardous waste, located on that portion of the ORNL site in Lenoir City, Roane County, Tennessee, at latitude 35° 54' 038" and longitude 84° 19' 000". The permittee shall be allowed to treat and store hazardous waste only in accordance with the terms of this permit.

Corp. (hereinafter called the Permittee), to operate hazardous waste storage units for management of hazardous waste, located on that portion of the ORNL site in Lenoir City, Roane County, Tennessee, at latitude 35° 54' 038" and longitude 84° 19' 000". The permittee shall be allowed to store hazardous waste only in accordance with the terms of this permit.

U.S. DOE is the owner and operator under this Permit responsible for all activities conducted at the permitted facility, including but not limited to, overall management and operation of the permitted facility, and oversight of co-permittees conducting operations and/or activities within the boundaries of the permitted facility.

BJC is a co-operator under this Permit for those operations and/or activities subject to the conditions of this Permit where BJC's agents, employees or subcontractors have operational control and/or management responsibility.

WESKEM is a co-operator under this Permit for those operations and/or activities subject to the conditions of this Permit where WESKEM's agents, employees or subcontractors have operational control and/or management responsibility.

Foster Wheeler Environmental Corporation is a co-operator under this Permit for those operations and/or activities subject to the conditions of this Permit where Foster Wheeler's agents, employees or subcontractors have operational control and/or management responsibility.

This permit is issued under the authority of § 68-212-108. This Permit, in conjunction with the Correction Action portion of the Hazardous Waste Permit, issued by the Environmental Protection Agency, constitutes the full hazardous waste permit for this facility. The permittee shall be required to investigate any releases of hazardous waste or hazardous constituents pursuant to this permit at the facility regardless of the time at which waste was placed in a unit and to take appropriate corrective action for any such releases. The permit also requires the permittee to comply with all land disposal restrictions and air emission standards applicable to this facility, as required by this permit, and to certify annually that on-site generation of hazardous waste is minimized to the extent practicable.

The permittee must comply with all terms and conditions of this permit. This permit consists of the conditions contained herein (including those in any attachments) and the applicable regulations contained in Rule Chapters 1200-1-11 or 1200-1-14, as specified in the permit. Applicable regulations are those from Rule 1200-1-11-.06 or from Rule 1200-1-14-.03, which are in effect on the date of issuance of the permit, for all other rules in Rule Chapters 1200-1-11 or 1200-1-14, applicable regulations are those in effect on the date of the issuance of this permit and any subsequent modifications to those rules as they become effective.

U. S. DEPARTMENT OF ENERGY
OAK RIDGE NATIONAL LABORATORY
TRANSURANIC AND WPF STORAGE AREAS
EPA ID NO.: TN1 89 009 0003
PERMIT NUMBER: TNHW-097

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Class 1 Modification – Dated: 1/10/07

Class 2 Modification – Dated: 1/25/07

Permittee: U.S. Department of Energy, Bechtel Jacobs Company LLC, WESKEM, LLC,
and Foster Wheeler Environmental Corp.

Facility Name: Oak Ridge National Laboratory

EPA I. D. Number: TN1 89 009 0003

Owner and Operator: U.S. Department of Energy

Co-Operators: Bechtel Jacobs Company LLC, WESKEM, LLC, and Foster Wheeler
Environmental Corp.

Permit Number: TNHW-097

I. STANDARD CONDITIONS

A. EFFECT OF PERMIT

The permittee is allowed to store (per Attachment 1, Section 1-1) wastes in accordance with the conditions of this permit. Any receipt or handling of hazardous waste not authorized in this permit is prohibited, unless such management is not subject to a permit as set forth at Rule 1200-1-11-.07(1)(b), is operating under interim status as set forth in Rule 1200-1-11-.07(3)(a), or is subject to a separate hazardous waste management permit issued by the Department. Compliance with this permit during its term constitutes compliance, for the purposes of enforcement, with the Tennessee Hazardous Waste Management Act of 1977, as amended, as it applies to the permitted activities, except for those requirements not included in the permit which: (1) become effective by statute; or (2) are promulgated under Rule 1200-1-11-.10 restricting the placement of hazardous waste in or on the land. However, this permit may be modified, revoked and reissued, or terminated during its term for cause as set forth in this permit and paragraph (9) of Rule 1200-1-11-.07. Issuance of this permit does not authorize any injury to persons or property, any invasion of other private rights, or any infringement of other State or local laws or regulations. This permit does not convey any property rights of any sort, or any exclusive privilege. Compliance with the terms of this permit does not constitute a defense to any order issued or any action brought under Section 3013 or Section 7003 of the Resource Conservation and Recovery Act of 1976 as amended (42 U.S.C. 6901 *et seq.*, commonly referred to as RCRA), Sections 104, 106(a) and 107 of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (42 U.S.C. 9601 *et seq.*, commonly known as CERCLA), Sections 68-212-206(a), 207, and 215(c) of the Tennessee Hazardous Waste Management Act of 1983, as amended, or any other law providing for protection of public health or the environment.

B. SEVERABILITY

The provisions of this permit are severable, and if any provisions of this permit or the application of any provision of this permit to any circumstance is held invalid, the application of such provision to other circumstances and the remainder of this permit shall not be affected thereby.

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Class 1 Modifications - Dated: 5/1/98, 3/15/99, 1/5/00, 10/29/02, and 1/10/07

Class 2 Modification - Dated: 3/14/05 and 1/25/07

Temporary Authorization - Dated: 3/6/06

C. DEFINITIONS

For the purpose of this permit, terms used herein shall have the same meaning as those in Rules 1200-1-11-.01, .02, .06 and .10, unless this permit specifically provides otherwise. Where terms are not otherwise defined, the meaning associated with such terms shall be as defined by a standard dictionary reference or the generally accepted scientific or industrial meaning of the term.

1. "Action levels" for the purposes of this permit are health-based concentrations of hazardous constituents determined to be indicators for the protection of human health and/or the environment.
2. "Area of concern" (AOC) for the purposes of this permit includes any area having a probable release of a hazardous waste or hazardous waste constituent which is not from a solid waste management unit and is determined by the Commissioner to pose a current or potential threat to human health or the environment. Such areas of concern may require investigations and remedial action as required by this permit in order to ensure adequate protection of human health and the environment.
3. "Contamination" refers to the presence of any hazardous constituent in a concentration which exceeds the naturally occurring concentration of that constituent in the immediate vicinity of the unit(s) (in areas not affected by the unit(s)).
4. "Corrective action" for the purposes of this permit, may include all corrective measures necessary to protect human health and the environment from all releases of hazardous waste or hazardous constituents from any solid waste management unit at the facility, regardless of the time at which waste was placed in the unit, as required by Rule 1200-1-11-.06(6)(a). Corrective measures may address releases to air, soils, surface water or groundwater.
5. A "Corrective action management unit" or "CAMU" for the purposes of this permit, includes any area within a facility that is designated by the Commissioner under Rule 1200-1-11-.06(22), for the purpose of implementing corrective action requirements under Rule 1200-1-11-.06(6)(e). A corrective action management unit shall only be used for the management of remediation wastes pursuant to implementing such corrective action requirements at the facility.
6. "Corrective measures" for the purposes of this permit, include all corrective action necessary to protect human health and the environment for all releases of hazardous waste or hazardous constituents from any solid waste management unit at the facility, regardless of the time the waste was placed in the unit, as required under Rule 1200-1-11-.06(6). Corrective measures may address releases to air, soils,

surface water or groundwater.

7. "Extent of contamination" for the purposes of this permit, is defined as the horizontal and vertical area in which the concentrations of hazardous constituents in the environmental media being investigated are above detection limits or background concentrations indicative of the region, whichever is appropriate as determined by the Commissioner.
8. "Facility" includes all contiguous land, and structures, other appurtenances, and improvements on the land, used for treating, storing, or disposing of hazardous waste. A facility may consist of several treatment, storage, or disposal operational units (e.g., one or more landfills, surface impoundments, or combination of them). For the purposes of implementing corrective action under Rule 1200-1-11-.06(6), a facility includes all contiguous property under the control of the owner or operator seeking a permit under the Tennessee Hazardous Waste Management Act.
9. "Hazardous constituent(s)" or "hazardous waste constituent(s)" are those substances listed in Rule 1200-1-11-.02(5)(a), and Rule 1200-1-11-.06(33)(a), including hazardous constituents released from any waste and hazardous constituents that are reaction by-products.
10. "Interim measures" for the purposes of this permit are actions necessary to minimize or prevent the further migration of contaminants and limit actual or potential human and environmental exposure to contaminants while long-term corrective action remedies are evaluated and, if necessary, implemented.
11. "Land disposal" for the purposes of this permit means placement in or on the land, except for a "corrective action management unit," and includes, but is not limited to, placement in a landfill, surface impoundment, waste pile, injection well, land treatment facility, salt dome formation, underground mine or cave, or concrete vault or bunker intended for disposal purposes.
12. "Landfill" for the purposes of this permit includes any disposal facility or part of a facility where hazardous waste is placed in or on the land and which is not a pile, a land treatment facility, a surface impoundment, an underground injection well, a salt dome formation, a salt bed formation, an underground mine, a cave, or a corrective action management unit.
13. "Point of compliance" refers to the vertical surface located at the hydraulically downgradient limit of the waste management area that extends down into the uppermost aquifer underlying the regulated unit.
14. "Registered engineer" or "registered professional engineer" shall mean a person

authorized to perform engineering in Tennessee pursuant to Tennessee Code Annotated, Title 62, Chapter 2.

15. "Remediation waste" for the purposes of this permit includes all solid and hazardous wastes, and all media (including ground water, surface water, soils, and sediments) and debris, which contain listed hazardous waste or which themselves exhibit a hazardous waste characteristic, that are managed for the purpose of implementing corrective action requirements of Rule 1200-1-11-.06(6)(a). For a given facility, remediation wastes may originate only from within the facility boundary, but may include waste managed for releases beyond the facility boundary.
16. "Release" includes any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, dumping, or disposing into the environment of any hazardous constituents.
17. The term "solid waste" means any garbage, refuse, sludge from a waste treatment plant, water supply treatment plant, or air pollution control facility and other discarded material, including solid, liquid, semisolid, or contained gaseous material resulting from industrial, commercial, mining, and agricultural operations, and from community activities, but does not include solid or dissolved materials in domestic sewage, or solid or dissolved materials in irrigation return flow or industrial discharges which are point sources subject to permits under section 402 of the Federal Water Pollution Control Act, as amended (86 Stat. 880), or source, special nuclear, or by-product material as defined by the Atomic Energy Act of 1954, as amended (68 Stat. 923).
18. A "solid waste management unit" for the purposes of this permit includes any unit which has been used for the treatment, storage, or disposal of solid waste at any time, irrespective of whether the unit is or ever was intended for the management of solid waste. Permitted or interim status hazardous waste management units are also solid waste management units. Solid waste management units include areas that have been contaminated by routine and systematic releases of hazardous waste or hazardous constituents, excluding one-time accidental spills that are immediately remediated and cannot be linked to solid waste management activities (e.g., product or process spills).
19. A "temporary unit" (TU) for the purposes of this permit includes any temporary tanks and/or container storage areas used solely for treatment or storage of hazardous remediation wastes during specific remediation activities. Designated by the Commissioner, such units must conform to specific standards, and may only be in operation for a period of time as specified in this permit.
20. A "unit" for the purposes of this permit includes, but is not limited to, any landfill,

surface impoundment, waste pile, land treatment unit, incinerator, injection well, tank, container storage area, septic tank, drain field, wastewater treatment unit, elementary neutralization unit, transfer station, or recycling unit.

D. GENERAL DUTIES AND REQUIREMENTS

1. Duty to Comply: The permittee shall comply with all conditions of this permit, except that the permittee need not comply with the conditions of the permit to the extent and for the duration that such noncompliance is authorized in an emergency permit. Any permit noncompliance, except under the terms of an emergency permit, constitutes a violation of the Act and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application.
2. Duty to Reapply: If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee must apply for and obtain a new permit. In accordance with Rule 1200-1-11-.07(2)(e), the permittee must submit a new application at least 180 days before the expiration date of the effective permit, unless permission for a later date has been granted by the Commissioner. (The Commissioner shall not grant permission for applications to be submitted later than the expiration date of the existing permit.)
3. Need to Halt or Reduce Activity Not a Defense: It shall not be a defense for the permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.
4. Duty to Mitigate: In the event of noncompliance with the permit, the permittee shall take all reasonable steps to minimize releases to the environment, and shall carry out such measures as are reasonable to prevent significant adverse impacts on human health or the environment.
5. Proper Operation and Maintenance: The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls, including appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems only when necessary to achieve compliance with the conditions of the permit.
6. Permit Actions: This permit may be modified, revoked and reissued, or terminated for cause. The filing of a request by the permittee for a permit modification,

revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance, does not stay any existing permit condition.

7. Duty to Provide Information: The permittee shall furnish to the Commissioner, within a reasonable time, any relevant information which the Commissioner may request to determine whether cause exists for modifying, revoking and reissuing, terminating this permit, or to determine compliance with this permit. The permittee shall also furnish to the Commissioner, upon request, copies of records required to be kept by this permit.
8. Inspection and Entry: The permittee shall allow the Commissioner, or any authorized representative, upon presentation of credentials and other documents as may be required by law to:
 - (a) Enter, at reasonable times, upon the permittee's premises where a regulated unit(s) or activity is located or conducted, or where records must be kept under the conditions of this permit;
 - (b) Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;
 - (c) Inspect, at reasonable times, any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit;
 - (d) Sample or monitor, at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by the Act, any substances or parameters at any location; and
 - (e) Make photographs for the purpose of documenting items of compliance or noncompliance at waste management units or, where appropriate to protect legitimate proprietary interest, make such photographs for him or her.

"At reasonable times" shall mean, for the purposes of this permit condition, at least but not limited to, any time the facility is in operation.

9. Monitoring and Records
 - (a) Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.
 - (b) The permittee shall retain records of all monitoring information, including

all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, the certification required by subparagraph II.K.1.(i), and records of all data used to complete the application for this permit, for a period of at least 3 years from the date of the sample, measurement, report, certification, or application. The permittee shall maintain records from all ground-water monitoring wells and associated ground-water surface elevations, for the active life of the facility, and, for disposal facilities, for the post-closure care period as well. This period may be extended by request of the Commissioner at any time.

- (c) Records of monitoring information shall include:
- (i) The date, exact place, and time of sampling or measurements;
 - (ii) The individual(s) who performed the sampling or measurements;
 - (iii) The date(s) analyses were performed;
 - (iv) The individual(s) who performed the analyses;
 - (v) The analytical techniques or methods used; and
 - (vi) The results of such analyses.

10. **Signatory Requirement:** All applications, reports, or information submitted to the Commissioner shall be signed and certified. All signatures and certifications shall satisfy the requirements of Rule 1200-1-11-.07(2)(a).

11. **Reporting Requirements**

- (a) **Planned changes:** The permittee shall give notice to the Commissioner as soon as possible of any planned physical alterations or additions to the permitted facility.
- (b) **Anticipated noncompliance:** The permittee shall give advance notice to the Commissioner as soon as possible of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements. For a new facility, the permittee may not commence treatment, storage, or disposal of hazardous waste; and for a facility being modified, the permittee may not treat, store, or dispose of hazardous waste in the modified portion of the facility except as provided in Rule 1200-1-11-.07(9)(c)5.; until:

- (i) The permittee has submitted to the Commissioner by certified mail or hand delivery a letter signed by the permittee and a registered professional engineer stating that the facility has been constructed or modified in compliance with the permit; and
- (ii)
 - (I) The Commissioner has inspected the modified or newly constructed facility and finds it is in compliance with the conditions of the permit; or
 - (II) Within 15 days of the date of submission of the letter in subpart I.D.11.(b)(ii)(I) above, the permittee has not received notice from the Commissioner of his or her intent to inspect, prior inspection is waived and the permittee may commence treatment, storage, or disposal of hazardous waste.
- (iii) It is recognized that minor deviations from exact design specifications may occur during construction. These must be noted in the engineer's statement accompanied with an evaluation of the impact of the deviation on facility performance. If the Commissioner determines that the deviations are indeed minor and will not adversely impact the permittee's ability to comply with the conditions of this permit, he may modify the permit accordingly, without following the procedures of Rules 1200-1-11-.07(7) and (9).
- (c) Transfers: This permit is not transferable to any person except after notice to the Commissioner. The Commissioner may require modification or revocation and reissuance of the permit to change the name of the permittee and incorporate such other requirements as may be necessary under the Act. (See Rule 1200-1-11-.07(9)(b); in some cases, modification or revocation and reissuance is mandatory.)
- (d) Monitoring reports: Monitoring results shall be reported at the intervals specified elsewhere in this permit.
- (e) Compliance schedules: Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this permit shall be submitted no later than 14 days following each schedule date.
- (f) Twenty-four hour reporting:
 - (i) The permittee shall report any noncompliance which may endanger

health or the environment orally within 24 hours from the time the permittee becomes aware of the circumstances, including:

- (I) Information concerning release of any hazardous waste that may cause an endangerment to public drinking water supplies.
 - (II) Any information of a release or discharge of hazardous waste, or of a fire or explosion from the hazardous waste management facility, which could threaten the environment or human health outside the facility.
- (ii) The description of the occurrence and the cause shall include:
- (I) Name, address, and telephone number of the owner or operator;
 - (II) Name, address, and telephone number of the facility;
 - (III) Date, time, and type of incident;
 - (IV) Name and quantity of material(s) involved;
 - (V) The extent of injuries, if any;
 - (VI) An assessment of actual or potential hazards to the environment and human health outside the facility, where this is applicable; and
 - (VII) Estimated quantity and disposition of recovered material that resulted from the incident.
- (iii) A written submission shall also be provided within 5 days of the time the permittee becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance. The Commissioner may waive the five day written notice requirement in favor of a written report within fifteen days.

- (g) Manifest discrepancy report: If a significant discrepancy in a manifest is discovered, the permittee must attempt to reconcile the discrepancy. If not resolved within fifteen days, the permittee must submit a letter report, including a copy of the manifest, to the Commissioner. (See paragraph II.J.4.)
 - (h) Unmanifested waste report: Such report must be submitted to the Commissioner within 15 days of receipt of unmanifested waste. (See paragraph II.K.3.)
 - (i) Annual report: An annual report must be submitted covering facility activities during the previous calendar year. (See paragraph II.K.4.)
 - (j) Other noncompliance: The permittee shall report all instances of noncompliance not reported under subparagraphs I.D.11.(d), (e), and (f) above, at the time monitoring reports are submitted. The reports shall contain the information listed in subparagraph I.D.11.(f) above.
 - (k) Other information: Where the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Commissioner, it shall promptly submit such facts or information.
12. Continuation of Expiring Permit: When the permittee has made timely and sufficient application for a new permit, the existing permit does not expire until the application has been finally determined by the Commissioner and, in case the application is denied, or the terms of the new permit limited, until the last day for seeking review of the Commissioner's order or a later date fixed by order of the reviewing court.

E. CONFIDENTIAL INFORMATION

In accordance with Rule 1200-1-11-.01(7), the permittee may claim for confidential handling any proprietary information required to be submitted by this permit.

F. DOCUMENTS TO BE MAINTAINED AT THE FACILITIES (ORNL AND TRU Waste Processing Facility (WPF))

The permittee shall maintain at the facilities (ORNL and WPF), until closure is completed and certified by an independent registered professional engineer, the following documents and amendments, revisions and modifications to these documents:

1. Waste analysis plan(s) required by this permit;
2. Personnel training documents and records required by this permit, except that training records on former employees are not required to be kept for more than three years from the date the employee last worked at the facility; (Personnel training records may accompany personnel transferred within the same company.)
3. Contingency plan required by this permit;
4. Closure plan(s) required by this permit;
5. Operating record(s) required by this permit; and
6. Inspection schedule(s) and records required by this permit, except that inspection records need only be kept for three years after the date of the inspection.

G. ANNUAL PERMIT MAINTENANCE FEE

The permittee shall submit to the Commissioner an annual permit maintenance fee as

H. REQUIRED NOTICES

1. If the permittee has arranged to receive hazardous waste from a foreign source, he must notify the Commissioner in writing at least four weeks in advance of the date the waste is expected to arrive at the facility. Notice of subsequent shipments of the same waste from the same foreign source is not required.
2. If the permittee receives hazardous waste from an off-site source (except where the permittee is also the generator), he must inform the generator in writing that he has the appropriate permit(s) for, and will accept, the waste the generator is shipping. The permittee must keep a copy of this written notice as part of the operating record.
3. Before transferring ownership or operation of a facility during its operating life, or of a disposal facility during the post-closure care period, the permittee must notify the new owner or operator in writing of the requirements of this permit and Rule 1200-1-11-.07.

(Comment: A permittee's failure to notify the new owner or operator of the requirements of this permit condition in no way relieves the new owner or operator of his obligation to comply with all applicable requirements.)

I. ORDER OF PRECEDENCE

In the event of any inconsistency between the permit conditions and the material contained in any attachment to this permit, the permit conditions shall take precedence.

J. PERMIT STRUCTURE

This permit is organized, numbered, and referenced according to the following outline form:

I. Section

A. Subsection

1. Paragraph

(a) Subparagraph

(i) Part

(I) Subpart

Permittee: U.S. Department of Energy, Bechtel Jacobs Company LLC, WESKEM, LLC, and Foster Wheeler Environmental Corp.

Facility Name: Oak Ridge National Laboratory

EPA I. D. Number: TN1 89 009 0003

Owner and Operator: U.S. Department of Energy

Co-Operators: Bechtel Jacobs Company LLC, WESKEM, LLC, and and Foster Wheeler Environmental Corp.

Permit Number: TNHW-097

II. GENERAL FACILITY CONDITIONS

- A. **HAZARDOUS WASTES TO BE MANAGED:** The hazardous wastes to be managed in the unit(s) authorized by this permit are identified in Attachment 1. The permittee shall not manage any other hazardous wastes identified by Rule 1200-1-11-.02 in the unit(s) authorized by this permit, until this permit has been appropriately modified.
- B. **MAINTENANCE OF THE FACILITY:** The permittee shall construct or maintain the facility to minimize the possibility of a fire, explosion, or any unplanned sudden or non-sudden release of hazardous waste constituent to air, soil, or surface water which could threaten human health or the environment.
- C. **SAMPLING, ANALYSIS, AND MONITORING**
1. **General Waste Analysis:** Before the permittee stores any hazardous waste, he shall obtain a detailed chemical and physical analysis of a representative sample of the waste and/or knowledge of the process that generated the waste. At a minimum, this analysis shall contain all the information which must be known to manage the waste in accordance with this permit and Rule 1200-1-11-.10.
 2. **Waste Analysis Plan**
 - (a) The permittee shall follow the procedures described in the Waste Analysis Plan found in Attachment 1. However, use of the exact forms included in Attachment 1 is not mandatory. The permittee may change the format and content of those forms as deemed necessary to provide the information he needs to properly manage the facility. Any deletion of RCRA-mandated information from such forms, however, must be approved in advance in writing by the Commissioner as a modification to this permit.
 - (b) The permittee shall ensure that the waste analysis plan, required by subparagraph II.C.2.(a) above, at a minimum, specifies:

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Class 1 Modifications - Dated: 5/1/98, 3/15/99, 1/5/00, 10/29/02, and 1/10/07

Class 2 Modifications - Dated: 3/14/05 and 1/25/07

Temporary Authorization - Dated: 3/6/06

- (i) The parameters for which each hazardous waste will be analyzed and the rationale for the selection of these parameters;
 - (ii) The test methods which will be used to test for these parameters;
 - (iii) The sampling method which will be used to obtain a representative sample of the waste to be analyzed;
 - (iv) The frequency with which the initial analysis of the waste will be reviewed or repeated to ensure that the analysis is accurate and up to date;
 - (v) For shipments from off-site facilities, the waste analysis the hazardous waste generators have agreed to supply; and
 - (vi) Where applicable, the methods that will be used to meet the additional waste analysis requirements for specific waste management methods as specified in paragraph II.G.3., and subsections II.O, II.P. and II.Q.
- (c) For shipments from off-site facilities, the permittee shall also ensure that the waste analysis plan, required by subparagraph II.C.2.(a) above, at a minimum, specifies the procedures to be used to inspect and, if necessary, analyze each movement of hazardous waste received at the facility to ensure that it matches the identity of the waste designated on the accompanying manifest or shipping paper. At a minimum, the plan shall describe:
- (i) The procedures which will be used to determine the identity of each movement of waste managed at the facility; and
 - (ii) The sampling method which will be used to obtain a representative sample of the waste to be identified, if the determination method includes sampling.

3. Frequency of Analysis: The analysis shall be repeated as necessary to ensure that it is accurate and up-to-date. At a minimum, the analysis shall be repeated no less frequently than the frequency specified in the Waste Analysis Plan (Attachment 1) and shall be repeated:

- (a) When the permittee is notified or has reason to believe that the process or operation generating the hazardous waste has changed; and
- (b) For off-site facilities, when the results of the inspection required in subparagraph II.C.4.(a) below indicate that the hazardous waste received at

the facility does not match the waste designated on the accompanying manifest or shipping paper.

4. Additional Analysis

- (a) The permittee shall inspect and, if necessary, analyze each hazardous waste shipment received from off-site at the facility to determine whether it matches the identity of the waste specified on the accompanying manifest or shipping paper. The procedure which shall be followed is described in the Waste Analysis Plan, Attachment 1.
- (b) The permittee shall inspect and, if necessary, analyze all standing liquid in the secondary containment system(s) prior to its release from the facility. Sampling and analysis shall be performed as necessary to determine whether the liquid is a hazardous waste and how to properly manage it.

5. Sampling and Monitoring: Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. The method used to obtain a representative sample of the waste to be analyzed must be the appropriate method from Appendix I, at Rule 1200-1-11-.02(5), or an equivalent method. Laboratory methods must be those specified in the most recent edition of Test Methods for Evaluating Solid Waste Physical/Chemical Methods (SW-846 or Methods for Chemical Analysis of Water and Wastes (EPA-600/4-79-020), or the methods as specified in the attached Waste Analysis Plan, Attachment 1.

D. SECURITY

- 1. The permittee shall prevent the unknowing entry, and minimize the possibility for the unauthorized entry, of persons or livestock onto the active portion of the facility. The permittee shall maintain security for the facility in the manner described in Attachment 2.
- 2. (a) Except as provided in subparagraph II.D.2.(b) below, the permittee shall post a sign with the legend, "Danger - Unauthorized Personnel Keep Out", at each entrance to any active portion of the facility, and at locations, in sufficient numbers to be seen from any approach to the active portion. The legend must be written in English and in any other language predominant in the area surrounding the facility, and must be legible from a distance of at least 25 feet.
- (b) Existing signs with a legend other than "Danger - Unauthorized Personnel Keep Out" may be used if the legend on the sign indicates that only authorized personnel are allowed to enter the active portion, and that entry onto the active portion can be dangerous.

- (c) If for any reason a sign must be replaced, it shall comply with requirements of subparagraph II.D.(a) above.

E. GENERAL INSPECTION REQUIREMENTS

1. Inspection Schedule:

(a) The permittee shall inspect the facility units where containers are stored for malfunctions and deterioration, operator errors, and discharges which may be causing or may lead to (1) release of hazardous constituents to the environment or (2) a threat to human health.

(b) The permittee shall inspect the items listed in the inspection schedule in Attachment 3.

(c) The inspection type and frequency shall be in accordance with inspection schedule in Attachment 3. Area subject to spills, such as loading and unloading areas, shall be inspected daily when in use.

(d) The Commissioner may suspend specific inspection requirements for specific periods due to planned or unplanned disruption of the waste processing operation or parts of the operation.

(e) Any suspension of specific inspection requirements for specific periods, in accordance with subparagraph II.E.1(d) above, shall be requested by permittee in writing and approved by Commissioner in writing in order to take effect.

2. Remedies: The permittee shall remedy any deterioration or malfunction of equipment or structures which the inspection reveals on a schedule which ensures that the problem does not lead to an environmental or human health hazard. Where a hazard is imminent or has already occurred, remedial action shall be taken immediately.

3. Inspection Records: The permittee shall record inspections in an inspection log or summary. The permittee shall keep these records for at least three years from the date of inspection. At a minimum, these records shall include the date and time of the inspection, the name of the inspector, and a notation of the observation made, and the date and nature of any repairs or other remedial actions. The permittee may change the format and content of the inspection forms, contained in Attachment 3, as deemed necessary to provide the information he needs to properly manage the facility. Any deletion of RCRA-mandated information (i.e., items to be inspected, types of problems which are to be looked for during the inspection, and inspection frequencies) from such forms, however, must be approved in advance, in writing, by the Commissioner as a modification to this permit.

F. PERSONNEL TRAINING

The permittee shall ensure that facility personnel successfully complete a program of classroom instruction and/or on the job training that teaches them to perform their duties in a way that ensures the permittee's compliance with this permit. The permittee shall ensure that the training program is directed by a person(s) trained in hazardous waste management procedures and shall include instruction which teaches facility personnel hazardous waste management procedures (including contingency plan implementation) relevant to the positions in which they are employed.

1. Training Program: The training program shall at least conform to the personnel training outline included in Attachment 4. The permittee shall ensure that the training program is, at a minimum, designed to ensure that facility personnel are able to respond effectively to emergencies by familiarizing them with emergency procedures, emergency equipment, and emergency systems, including where applicable:
 - (a) Procedures for using, inspecting, repairing, and replacing facility emergency and monitoring equipment;
 - (b) Key parameters for automatic waste feed cut-off systems;
 - (c) Communications or alarm systems;
 - (d) Response to fires or explosions;
 - (e) Response to ground-water contamination incidents; and
 - (f) Shutdown of operations.
2. Timing: Facility personnel shall successfully complete the program within six months after the date of their employment or assignment to the facility, or to a new position at the facility, whichever is later. Untrained personnel shall not work in unsupervised positions until they have completed the training requirements of this permit.
3. Annual Review: Facility personnel shall take part in an annual review of the initial training required by this permit.
4. Training Documents and Records: The permittee shall maintain the following documents and records at the facility:
 - (a) The job title for each position at the facility related to hazardous waste management, and the name of the employee(s) filling each job;

- (b) A written description for each position listed in subparagraph II.F.4.(a) above. This description may be consistent in its degree of specificity with descriptions for other similar positions in the same company location or bargaining unit, but must include the requisite skill, education, or other qualifications, and duties of employees assigned to each position;
 - (c) A written description of the type and amount of both introductory and continuing training that will be given to each person filling a position listed under subparagraph II.F.4.(a) above; and
 - (d) Records that document that the training or job experience required under paragraphs II.F.1, 2 and 3 above has been given to, and completed by, facility personnel.
5. Retention of Training Records: Training records on current personnel shall be kept until closure of the facility; training records on former employees shall be kept for at least three years from the date the employee last worked at the facility. Personnel training records may accompany personnel transferred within the same company.

G. GENERAL REQUIREMENTS FOR IGNITABLE, REACTIVE, OR INCOMPATIBLE WASTE

1. The permittee shall take precautions to prevent accidental ignition or reaction of ignitable or reactive waste. This waste shall be separated and protected from sources of ignition or reaction including but not limited to: open flames, smoking, cutting and welding, hot surfaces, frictional heat, sparks (static, electrical, or mechanical), spontaneous ignition (e.g., from heat producing chemical reactions), and radiant heat. While ignitable or reactive waste is handled, the permittee shall confine smoking and open flames to specially designated locations. "No smoking" signs shall be conspicuously placed wherever there is a hazard from ignitable or reactive waste.
2. Where specifically required by this permit, the permittee that treats, stores or disposes of ignitable or reactive waste, or mixes incompatible waste or incompatible wastes and other materials, shall take precautions to prevent reactions which:
 - (a) Generate extreme heat or pressure, fire or explosions, or violent reactions;
 - (b) Produce uncontrolled toxic mists, fumes, dusts, or gases in sufficient quantities to threaten human health or the environment;
 - (c) Produce uncontrolled flammable fumes or gases in sufficient quantities to pose a risk of fire or explosions;
 - (d) Damage the structural integrity of the device or facility; or

- (e) Through other like means threaten human health or the environment.
3. When required to comply with paragraphs II.G.1 and/or 2 above, the permittee shall document that compliance. This documentation may be based on references to published scientific or engineering literature, data from trial tests (e.g., bench scale or pilot scale tests), waste analyses, or the results of the treatment of similar waste by similar treatment processes and under similar operating conditions.

H. PREPAREDNESS AND PREVENTION

1. Operation/Maintenance of the facility: The facility unit(s) shall be designed, constructed, maintained, and operated to minimize the possibility of a fire, explosion, or any unplanned sudden or nonsudden release of hazardous waste or hazardous constituents to air, soil, or surface water which could threaten human health or the environment.
2. Required Equipment: TDEC has approved ORNL's request for waivers for storage of preparedness and prevention equipment at the units when storing TRU, high-activity LLW, or Class III/IV wastes (refer to Attachment 2, Section 2-1b). At a minimum, the permittee shall equip ORNL with the equipment listed in the contingency plan, Attachment 5, and with the following:
 - (a) An internal communications or alarm system capable of providing immediate emergency instruction (voice or signal) to facility personnel;
 - (b) A device, such as a telephone (immediately available at the scene of operations) or a hand-held two-way radio, capable of summoning emergency assistance from local police departments, fire departments, or State or local emergency response teams;
 - (c) Portable fire extinguishers, fire control equipment (including special extinguishing equipment, such as that using foam, inert gas, or dry chemicals), spill control equipment, and decontamination equipment; and
 - (d) Water at adequate volume and pressure to supply water hose streams, or foam producing equipment, or automatic sprinklers, or water spray systems.
3. Testing and Maintenance of Equipment: The permittee shall test and maintain all facility communications or alarm systems, fire protection equipment, spill control equipment, and decontamination equipment, as necessary to assure its proper operation in time of emergency.

4. Access to Communications or Alarm Systems: The permittee shall ensure that:
 - (a) Whenever hazardous waste is being poured, mixed, spread, or otherwise handled, all personnel involved in the operation shall have immediate access to an internal alarm or emergency communication device, either directly or through visual or voice contact with another employee.
 - (b) If there is ever just one employee on the premises while the facility is operating, he shall have immediate access to a device, such as a telephone (immediately available at the scene of operation) or a hand-held two-way radio, capable of summoning external emergency assistance.

5. Required Aisle Space: TDEC has approved ORNL's request of waivers of the aisle space requirement for the RH-TRU and Class III/IV waste storage units (refer to Attachment 3, Section 3-1a). The permittee shall maintain aisle space as required in Attachment 3 to allow the unobstructed movement of personnel, fire protection equipment, spill control equipment, and decontamination equipment to any area of the facility operation in an emergency.

6. Arrangements with Local Authorities
 - (a) The permittee shall attempt to make the following arrangements, as appropriate for the type of waste authorized to be managed by this permit and the potential need for the services of these organizations:
 - (i) Arrangements to familiarize police, fire departments, and emergency response teams with the layout of the facility, properties of hazardous waste handled at the facility and associated hazards, places where facility personnel would normally be working, entrances to and roads inside the facility, and possible evacuation routes;
 - (ii) Where more than one police or fire department might respond to an emergency, agreements designating primary emergency authority to a specific police and a specific fire department, and agreements with any others to provide support to the primary emergency authority;
 - (iii) Arrangements with State emergency response teams, emergency response contractors, and equipment suppliers; and
 - (iv) Arrangements to familiarize local hospitals with the properties of hazardous wastes handled at the facility and the types of injuries or illnesses which could result from fires, explosions, or releases at the facility.

- (b) If State or local authorities decline to enter into such arrangements, the permittee shall document this refusal in the operating record.

I. CONTINGENCY PLAN: The permittee shall have a contingency plan for the facility.

1. Purpose of the Contingency Plan: The contingency plan, contained in this permit as Attachment 5, shall, at all times, be designed to minimize hazards to human health or the environment from fires, explosions, or any unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents to air, soil, or surface water.
2. Implementation of Plan(s): The permittee shall immediately carry out the provisions of the Contingency Plan, Attachment 5, whenever there is a fire, explosion, or release of hazardous waste or hazardous waste constituents which threatens or could threaten human health or the environment.
3. Content of the Contingency Plan
 - (a) The contingency plan, Attachment 5, shall accurately describe the actions facility personnel must take to comply with paragraphs II.I.1 and 2 above and paragraph II.I.7 below in response to fires, explosions, or any unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents which could threaten human health or the environment.
 - (b) The contingency plan, Attachment 5, shall accurately describe arrangements agreed to by local police departments, fire departments, hospitals, contractors, and State and local emergency response teams to coordinate emergency services, pursuant to paragraph II.H.6.
 - (c) The contingency plan, Attachment 5, shall list names, addresses and phone numbers (office) of all persons qualified to act as emergency coordinator (see paragraph II.I.6), and this list must be kept up to date. At ORNL, the emergency coordinator on duty will be the primary emergency coordinator; off-duty LSS personnel have no primary responsibility to respond to emergencies. For new facilities, this information must be supplied to the Commissioner at the time of certification.
 - (d) The contingency plan, Attachment 5, shall include a list of all emergency equipment at the facility (such as fire extinguishing systems, spill control equipment, communications and alarm systems (internal and external), and decontamination equipment), where this equipment is required. This list must be kept up to date. In addition, the contingency plan, Attachment 5, shall include the location and a physical description of each item on the list and, if necessary, a brief outline of its capabilities.

- (e) The contingency plan, Attachment 5, shall include an evacuation plan for facility personnel where there is a possibility that evacuation could be necessary. This evacuation plan shall describe signal(s) to be used to begin evacuation, evacuation routes, and alternate evacuation routes (in cases where the primary routes could be blocked by releases of hazardous waste or fires).
- 4. Copies of Plan: The permittee shall maintain at ORNL a copy of the contingency plan, Attachment 5, and its subsequent revisions. In addition, the contingency plan and all revisions to the plan shall be submitted to all local police departments, fire departments, hospitals, and State and local emergency response teams that may be called upon to provide emergency services.
- 5. Amendments to Plan(s): The permittee shall review and immediately amend the contingency plan(s) whenever one or more of the following occur:
 - (a) This permit is revised;
 - (b) The contingency plan fails in an emergency;
 - (c) The facility changes -- in its design, construction, operation, maintenance, or other circumstances -- in a way that materially increases the potential for fires, explosions, or releases of hazardous waste or hazardous constituents, or changes the response necessary in an emergency;
 - (d) The list of emergency coordinators changes; or
 - (e) The list of emergency equipment changes.
- 6. Emergency Coordinator: There shall be, at all times, at least one employee either on the facility premises or on call (i.e., available to respond to an emergency by reaching the facility within a short period of time) with the responsibility for coordinating all emergency response measures. This emergency coordinator shall be thoroughly familiar with all aspects of the facility's contingency plan, all operations and activities at the facility, the location and characteristics of waste(s) handled, the location of all records within the facility, and the facility layout. In addition, this person must have the authority to commit the resources needed to carry out the contingency plan.
- 7. Emergency Procedures
 - (a) Whenever there is an imminent or actual emergency situation, the emergency coordinator (or his designee when the emergency coordinator is on call) must immediately:

- (i) Activate internal facility alarms or communication systems, where applicable, to notify all facility personnel; and
 - (ii) Notify appropriate State or local agencies with designated response roles if their help is needed.
- (b) Whenever there is a release, fire, or explosion, the emergency coordinator must immediately identify the character, exact source, amount, and areal extent of any released materials. He may do this by observation or review of facility records or manifests, and, if necessary, by chemical analysis.
- (c) Concurrently, the emergency coordinator must assess possible hazards to human health or the environment that may result from the release, fire, or explosion. This assessment must consider both direct and indirect effects of the release, fire, or explosion (e.g., the effects of any toxic, irritating, or asphyxiating gases that are generated, or the effects of any hazardous surface water run-off from water or chemical agents used to control fire and heat-induced explosions).
- (d) If the emergency coordinator determines that the facility has had a release, fire, or explosion which could threaten human health, or the environment, outside the facility, he must report his findings as follows:
- (i) If his assessment indicates that evacuation of local areas may be advisable, he must immediately notify appropriate local authorities. He must be available to help appropriate officials decide whether local areas should be evacuated; and
 - (ii) He must immediately notify either the government official designated as the on-scene coordinator for that geographical area, or the National Response Center (using their 24-hour toll free number 800/424-8802). The report must include:
 - (I) Name and telephone number of reporter;
 - (II) Name and address of facility;
 - (III) Time and type of incident (e.g., release, fire);
 - (IV) Name and quantity of material(s) involved, to the extent known;
 - (V) The extent of injuries, if any; and

- (VI) The possible hazards to human health, or the environment, outside the facility.
- (e) During an emergency, the emergency coordinator must take all reasonable measures necessary to ensure that fires, explosions, and releases do not occur, recur, or spread to other hazardous waste at the facility. These measures must include, where applicable, stopping processes and operations, collecting and containing release waste, and removing or isolating containers.
 - (f) If the facility stops operations in response to a fire, explosion, or release, the emergency coordinator must monitor for leaks, pressure buildup, gas generation, or ruptures in valves, pipes, or other equipment, wherever this is appropriate.
 - (g) Immediately after an emergency, the emergency coordinator must provide for treating, storing, or disposing of recovered waste, contaminated soil or surface water, or any other material that results from a release, fire, or explosion at the facility.
 - (h) The emergency coordinator must ensure that, in the affected area(s) of the facility:
 - (i) No waste that may be incompatible with the released material is treated, stored, or disposed of until cleanup procedures are completed; and
 - (ii) All emergency equipment listed in the contingency plan is cleaned and fit for its intended use before operations are resumed.
 - (i) The permittee shall notify the Commissioner, and appropriate State and local authorities, that the facility is in compliance with subparagraph II.I. 7.(h) above before operations are resumed in the affected area(s) of the facility.
 - (j) The permittee shall note in the operating record the time, date, and details of any incident that requires implementing the contingency plan. Within 15 days after the incident, he shall submit a written report on the incident to the Commissioner. The report must include:
 - (i) Name, address, and telephone number of the owner or operator;
 - (ii) Name, address, and telephone number of the facility;
 - (iii) Date, time, and type of incident (e.g., fire, explosion);

- (iv) Name and quantity of material(s) involved;
- (v) The extent of injuries, if any;
- (vi) An assessment of actual or potential hazards to human health or the environment, where this is applicable; and
- (vii) Estimated quantity and disposition of recovered material that resulted from the incident.

J. MANIFEST SYSTEM

1. Use of the Manifest System: If the facility receives hazardous waste accompanied by a manifest, the permittee or his agent shall:

- (a) Sign and date each copy of the manifest to certify that the hazardous waste covered by the manifest was received;
- (b) Note any significant discrepancies in the manifest, as defined in subparagraph II.J.4.(a) below, on each copy of the manifest;

(Note: The Department does not intend that the permittee whose procedures under subparagraph II.C.2.(c) include waste analysis to perform that analysis before signing the manifest and giving it to the transporter. Subparagraph II.J.4.(b) below, however, requires reporting an unreconciled discrepancy discovered during later analysis.)

- (c) Immediately give the transporter at least one copy of the signed manifest;
- (d) Within 30 days after the delivery, send a copy of the manifest to the generator; and
- (e) Retain at the facility a copy of each manifest for at least three years from the date of delivery.

2. Bulk Shipments: If a facility receives, from a rail or water (bulk shipment) transporter, hazardous waste which is accompanied by a shipping paper containing all the information required on the manifest (excluding the installation identification numbers, generator's certification, and signatures), the permittee, or his agent, shall:

- (a) Sign and date each copy of the manifest or shipping paper (if the manifest has not been received) to certify that the hazardous waste covered by the manifest or shipping paper was received;

- (b) Note any significant discrepancies (as defined in subparagraph II.J.4.(a) below, on each copy of the manifest or shipping paper;

(Note: The Department does not intend that the permittee whose procedures under subparagraph II.C.2.(c) include waste analysis to perform that analysis before signing the shipping paper and giving it to the transporter. Subparagraph II.J.4. (b) below, however, requires reporting an unreconciled discrepancy discovered during later analysis.)

- (c) Immediately give the rail or water (bulk shipment) transporter at least one copy of the manifest or shipping paper (if the manifest has not been received);
- (d) Within 30 days after the delivery, send a copy of the signed and dated manifest to the generator; however, if the manifest has not been received within 30 days after delivery, the permittee, or his agent, shall send a copy of the shipping paper signed and dated to the generator; and
- (e) Retain at the facility a copy of the manifest and shipping paper (if signed in lieu of the manifest at the time of delivery) for at least three years from the date of delivery.

3. Initiating a Shipment: Whenever a shipment of hazardous waste is initiated from a facility, the permittee shall comply with the manifesting requirements of Rule 1200-1-11-.03, except for Rule 1200-1-11-.03(4)(e), applicable to the on-site accumulation of hazardous waste by generators. The provisions of Rule 1200-1-11-.03(4)(e) only apply to owners or operators who are shipping hazardous waste which they generated at that facility.

4. Manifest Discrepancies

- (a) Manifest discrepancies are differences between the quantity or type of hazardous waste designated on the manifest or shipping paper, and the quantity or type of hazardous waste the facility actually receives.
 - (i) Significant discrepancies in quantity are:
 - (I) For bulk waste, variations greater than 10 per cent in weight; and
 - (II) For batch waste, any variation in piece count, such as a discrepancy of one drum in a truckload.
 - (ii) Significant discrepancies in type are obvious differences which can be discovered by inspection or waste analysis, such as waste solvent

substituted for waste acid, or toxic constituents not reported on the manifest or shipping paper.

- (b) Upon discovery of a significant discrepancy, the permittee must attempt to reconcile the discrepancy with the waste generator or transporter (e.g., with telephone conversations). If the discrepancy is not resolved within 15 days after receiving the waste, the permittee shall immediately submit to the Commissioner a letter describing the discrepancy and attempts to reconcile it, and a copy of the manifest or shipping paper at issue.

5. Handling Manifested Shipments of Waste: It shall be the responsibility of the permittee to handle as a hazardous waste any material generated and shipped to him by another person which is identified on the manifest or shipping paper as a hazardous waste. The permittee shall not make the determination that such waste is nonhazardous, regardless of the results of his analysis, since that is the responsibility of the generator. If a manifest discrepancy occurs such that the permittee believes that the material shipped is indeed not a hazardous waste, then the permittee may not manage that material other than as a hazardous waste unless and until he obtains written certification from the generator that the material is not a hazardous waste. Such a written certification must be kept with the manifest as part of the operating record required subparagraph II.K.1.(n).

6. Accepting Hazardous Waste From Transporters: The permittee shall not accept any hazardous waste from a transporter unless that transporter has obtained a valid hazardous waste transporters permit from the Department. (Note: In accordance with Rule 1200-1-11-.04(2)(d)3, a motor vehicle transporter shall have a copy of his permit with him and available for inspection whenever he picks up, transports, or delivers a shipment of hazardous waste in Tennessee; and shall provide the generator/shipper with the opportunity to inspect that permit if so requested.)

K. RECORDKEEPING AND REPORTING: The permittee shall keep a written operating record at the facility.

1. Operating Record: The following information shall be recorded by the permittee, as it becomes available, and maintained in the operating record until closure of the facility:

- (a) A description and the quantity of each hazardous waste received and the method(s) and date(s) of its treatment, storage, or disposal at the facility as required by Appendix I at Rule 1200-1-11-.06(33);
- (b) The location of each hazardous waste within the facility and the quantity at each location. This information shall include cross-references to specific manifest document numbers if the waste was accompanied by a manifest;

- (c) Records and results of waste analysis performed as specified in subsections II.C., II.G., II.O, II.P, and II.Q;
- (d) Summary reports and details of all incidents that require implementing the contingency plan as required by subparagraph II.I.7.(j);
- (e) Records and results of inspections required by paragraph II.E.3 (except these data need to be kept only three years);
- (f) Monitoring, testing or analytical data as required by this permit; corrective action where required by section IV; and including where required by subsections II.P and II.Q.
- (g) For off-site facilities, notices to generators as required by paragraph I.H.2;
- (h) Reserved.
- (i) A certification by the permittee no less often than annually, that the permittee has a program in place to reduce the volume and toxicity of hazardous waste that he generates to the degree determined by the permittee to be economically practicable; and the proposed method of treatment, storage or disposal is that practicable method currently available to the permittee which minimizes the present and future threat to human health and the environment.
- (j) For an off-site facility, a copy of the notice, and the certification and demonstration, if applicable, required by the generator or the owner or operator under Rule 1200-1-11-.10(1)(g) or (h);
- (k) For an on-site treatment facility, the information contained in the notice (except the manifest number), and the certification and demonstration if applicable, required by the generator or the owner or operator under 40 CFR 268.7, incorporated by reference at Rule 1200-1-11-.10(1)(g) or (h);
- (l) For an off-site storage facility, a copy of the notice, and the certification and demonstration if applicable, required by the generator or the owner or operator under 40 CFR 268.7, incorporated by reference at Rule 1200-1-11-.10(1)(g) or (h);
- (m) For an on-site storage facility, the information contained in the notice (except the manifest number), and the certification and demonstration if applicable, required by the generator or the owner or operator under 40 CFR 268.7, incorporated by reference at Rule 1200-1-11-.10(1)(g) or (h); and
- (n) For off-site facilities, the written certification required by paragraph II.J.5.

2. Availability, Retention, and Disposition of Records

- (a) All records, including plans, required by this permit shall be furnished upon request, and made available at all reasonable times for inspection, by any officer, employee, or representative of the Department who is duly designated by the Commissioner.
- (b) The retention period for all records required under this permit is extended automatically during the course of any unresolved enforcement action regarding the facility or as requested by the Commissioner.

3. Unmanifested Waste Report: If a facility accepts for treatment, storage, or disposal any hazardous waste from an off-site source without an accompanying manifest, or without an accompanying shipping paper (bulk shipments), and if the waste is not excluded from the manifest requirement by Rule 1200-1-11-.02(1)(e) (conditionally exempt small quantity generators), then the permittee shall prepare and submit a single copy of a report to the Commissioner within fifteen days after receiving the waste. Such report shall be designated "Unmanifested Waste Report" and include the following information:

- (a) The installation identification number, name, and address of the facility;
- (b) The date the facility received the waste;
- (c) The installation identification number, name, and address of the generator and the transporter, if available;
- (d) A description and the quantity of each unmanifested hazardous waste the facility received;
- (e) The method of treatment, storage, or disposal for each hazardous waste;
- (f) The certification signed by the permittee or his authorized representative; and
- (g) A brief explanation of why the waste was unmanifested, if known.

4. Annual Report

- (a) The permittee shall prepare and submit a single copy of an annual report to the Commissioner by March 1 of each year.
- (b) Annual reports shall be submitted on forms provided by the Department and in accordance with the instructions accompanying the form.

- (c) The annual report shall cover facility activities during the previous calendar year and shall include the following information:
 - (i) The installation identification number, name, and address of the facility;
 - (ii) The calendar year covered by the report;
 - (iii) For off-site facilities, the installation identification number of each hazardous waste generator from which the facility received a hazardous waste during the year; for imported shipments, the report shall give the name and address of the foreign generator;
 - (iv) A description and the quantity of each hazardous waste the facility received during the year. For off-site facilities, this information shall be listed by installation identification number of each generator;
 - (v) The method of treatment, storage or disposal for each hazardous waste;
 - (vi) Reserved.
 - (vii) For generators who treat, store, or dispose of hazardous waste on-site, a description of the efforts undertaken during the year to reduce the volume and toxicity of waste generated;
 - (viii) For generators who treat, store, or dispose of hazardous waste on-site, a description of the changes in volume and toxicity of waste actually achieved during the year in comparison to previous years to the extent such information is available for the years prior to 1984; and
 - (ix) The certification signed by the permittee or his authorized representative.

5. Additional Reports: In addition to submitting unmanifested waste reports and the annual report required by paragraphs II.K.3 and 4, the permittee shall also report to the Commissioner:

- (a) Release, fires, and explosions as specified by subparagraph II.I.7.(j) and in the Contingency Plan, Attachment 5;
- (b) Facility closures as required by paragraph II.L.7; and
- (c) As otherwise required by subsections II.P and II.Q.

L. CLOSURE

1. Performance Standard:

- (a) The permittee shall close the facility in a manner that:
 - (i) Minimizes the need for further maintenance; and
 - (ii) Controls, minimizes or eliminates, to the extent necessary to protect human health and the environment, post closure escape of hazardous waste, hazardous constituents, leachate, contaminated runoff, or hazardous waste decomposition products to the ground or surface waters or to the atmosphere.
- (b) The permittee shall close the permitted units in accordance with the Closure Plan, Attachment 6.

2. Amendment to Closure Plan(s): The permittee shall submit a written notification of or request for a permit modification to authorize a change in operating plans, facility design, or the approved closure plan in accordance with the procedures in Rule 1200-1-11-.07(9) The written notification or request shall include a copy of the amended closure plan for review or approval by the Commissioner.

- (a) The permittee may submit a written notification or request to the Commissioner for a permit modification to amend the closure plan(s) at any time prior to the notification of partial or final closure of the facility.
- (b) The permittee shall submit a written notification of or request for a permit modification to authorize a change in the approved closure plan whenever:
 - (i) Changes in operating plans or facility design affect the closure plan, or
 - (ii) There is a change in the expected year of closure, if applicable, or
 - (iii) In conducted partial or final closure activities, unexpected events require a modification of the approved closure plan.
- (c) The permittee shall submit a written request for a permit modification including a copy of the amended closure plan for approval at least 60 days prior to the proposed change in facility design or operation, or no later than 60 days after an unexpected event has occurred which has affected the closure plan. If an unexpected event occurs during the partial or final closure period, the permittee shall request a permit modification no later than 30 days after the unexpected

event. The Commissioner will approve, disapprove, or modify this amended plan in accordance with the procedures in Rule 1200-1-11-.07(9). The modified closure plan, when approved, will become a condition of this permit.

- (d) The Commissioner may request modification to the plan under the conditions described in subparagraph II.L.2.(b). The permittee shall submit the modified plan within 60 days of the Commissioner's request, or within 30 days if the change in facility conditions occurs during partial or final closure. Any modifications requested by the Commissioner will be approved in accordance with the procedures in Rule 1200-1-11-.07(9).

3. Notification of Partial and Final Closure

- (a) The permittee shall notify the Commissioner in writing at least 45 days prior to the date on which he expects to begin final closure of the facility.
- (b) The date when he "expects to begin closure" must be no later than 30 days after the date on which any hazardous waste management unit receives the known final volume of hazardous waste or, if there is a reasonable possibility that the hazardous waste management unit will receive additional hazardous waste, no later than one year after the date on which the unit received the most recent volume of hazardous waste. If the permittee can demonstrate to the Commissioner that the hazardous waste management unit or facility has the capacity to receive additional hazardous wastes and he has taken all steps to prevent threats to human health and the environment, including compliance with all applicable permit requirements, the Commissioner may approve an extension to this one-year limit.
- (c) Notification of closure is not required, if the permit is terminated or the facility is otherwise ordered, by judicial decree on final order under the Act, to cease receiving hazardous waste or to close. However, the permittee shall close the facility in accordance with the deadlines established in paragraph II.L.5 below.

4. Removal of Wastes and Decontamination or Dismantling of Equipment: Nothing in this subsection (II.L) of the permit shall preclude the permittee from removing hazardous wastes and decontaminating or dismantling equipment in accordance with the approved partial or final closure plan at any time before or after notification or partial or final closure.

5. Time Allowed For Closure

- (a) Within 90 days after receiving the final volume of hazardous waste at a hazardous waste management unit or facility, the permittee shall treat, and remove from the unit or facility, all hazardous waste in accordance with the

approved closure plan, Attachment 6. The Commissioner may approve a longer period if the permittee complies with all applicable requirements for requesting a modification to the permit and demonstrates that:

- (i) (I) The activities required to comply with subparagraph (II.L.5.(a)) above will, of necessity, take longer than 90 days to complete; or
- (II) (A) The hazardous waste management unit or facility has the capacity to receive additional hazardous wastes;
- (B) There is a reasonable likelihood that he or another person will recommence operation of the hazardous waste management unit or the facility within one year; and
- (C) Closure of the hazardous waste management unit or facility would be incompatible with continued operation of the site; and
- (ii) He has taken and will continue to take all steps to prevent threats to human health and the environment, including compliance with all applicable permit requirements.

(b) The permittee shall complete partial and final closure activities in accordance with the approved closure plan, Attachment 6, and within 180 days after receiving the final volume of hazardous wastes at the hazardous waste management unit or facility. The Commissioner may approve an extension to the closure period if the permittee complies with all applicable requirements for requesting a modification to the permit and demonstrates that:

- (i) (I) The partial or final closure activities will, of necessity, take longer than 180 days to complete; or
- (II) (A) The hazardous waste management unit or facility has the capacity to receive additional hazardous wastes;
- (B) There is a reasonable likelihood that he or another person will recommence operation of the hazardous waste management unit or the facility within one year; and

- (C) Closure of the hazardous waste management unit or facility would be incompatible with continued operation of the site; and
 - (ii) He has taken and will continue to take all steps to prevent threats to human health and the environment, from the unclosed but not operating hazardous waste management unit or facility, including compliance with all applicable permit requirements.
- (c) The demonstrations referred to in subparagraphs II.L.5.(a) and (b) above shall be made as follows:
 - (i) The demonstration in subparagraph II.L.5.(a) above shall be made at least 30 days prior to the expiration of the 90-day period in subparagraph II.L.5.(a); and
 - (ii) The demonstration in subparagraph II.L.5.(b) above shall be made at least 30 days prior to the expiration of the 180-day period in subparagraph II.L.5.(b).
- 6. Disposal or Decontamination of Equipment, Structures, and Soils: During the partial and final closure periods, all contaminated equipment, structures and soils shall be properly disposed of or decontaminated, unless otherwise specified in the approved closure plan, Attachment 6. By removing any hazardous waste or hazardous constituents during partial or final closure, the permittee may become a generator of hazardous waste and, if so, must handle that hazardous waste in accordance with all applicable requirements of Rule 1200-1-11-.03.
- 7. Certification of Closure: Within 60 days of completion of final closure, the permittee shall submit to the Commissioner, by registered mail, a certification that the hazardous waste management unit or facility, as applicable, has been closed in accordance with the specifications in the approved closure plan (Attachment 6). The certification shall be signed by the permittee and by an independent registered professional engineer. Documentation supporting the independent registered professional engineer's certification shall be furnished to the Commissioner upon request until he releases the permittee from the for closure requirements per subsection II.L and Attachment 6.

M. CO-MANAGEMENT OF OTHER MATERIALS

- 1. The permittee shall not treat, store, or dispose of other wastes or other materials along with hazardous waste in any hazardous waste management unit or facility covered by this permit unless:

- (a) The other waste or other material is labeled, marked, or otherwise clearly identifiable as to what it is;
- (b) The permittee is able to demonstrate that the other waste or other material is not a hazardous waste; and
- (c) The other waste or other material is managed in a manner that does not adversely impact compliance with the conditions of this permit.

N. FINANCIAL REQUIREMENTS

- 1. Exemptions: States and the Federal government are exempt from the requirements of this subsection (II.N) of the permit.

O. LAND DISPOSAL RESTRICTIONS

Tennessee Rule 1200-1-11-.10 identifies hazardous wastes that are prohibited from land disposal and defines those limited circumstances under which an otherwise prohibited waste may continue to be placed in a land treatment, storage or disposal unit. The permittee shall comply with all applicable requirements of Tennessee Rule 1200-1-11-.10. Where the permittee has applied for an extension, waiver or variance under the rule, the permittee shall comply with all applicable restrictions of Rule 1200-1-11-.10 pending final approval of such application.

P. AIR EMISSION STANDARDS FOR PROCESS VENTS

- 1. The permittee shall comply with the requirements of Rule 1200-1-11-.06(30) for all process vents associated with distillation, fractionation, thin-film evaporation, solvent extraction, or air or steam stripping operations that manage hazardous waste with organic concentrations of at least 10-ppmw, if these operations are conducted in hazardous waste management units subject to this permit and in any on-site hazardous waste recycling unit.
- 2. To show that a process vent associated with a hazardous waste distillation, fractionation, thin-film evaporation, solvent extraction, or air or steam stripping operation is not subject to the requirements of paragraph II.I.1, the permittee shall make an initial determination that the time-weighted, annual average total organic concentration of the waste managed by the hazardous waste management unit is less than 10 ppmw using one of the following two methods:
 - (a) Direct measurement of the organic concentration of the waste using the following procedures:

- (i) The permittee shall take a minimum of four grab samples of waste for each waste stream managed in the affected unit under process conditions expected to cause the maximum waste organic concentration.
 - (ii) For waste generated on-site, the grab samples shall be collected at a point before the waste is exposed to the atmosphere such as in an enclosed pipe or other closed system that is used to transfer the waste after generation to the first affected distillation, fractionation, thin-film evaporation, solvent extraction, or air or steam stripping operation. For waste generated off-site, the grab samples shall be collected at the inlet to the first waste management unit that receives the waste provided the waste has been transferred to the facility in a closed system such as a tank truck and the waste is not diluted or mixed with other waste.
 - (iii) Each sample shall be analyzed and the total organic concentration of the sample shall be computed using Method 9060 or 8240 of SW-846 (Rule 1200-1-11-.01(2)(b)).
 - (iv) The arithmetic mean of the results of the analyses of the four samples shall apply for each waste stream managed in the unit in determining the time-weighted, annual average total organic concentration of the waste. The time-weighted average is to be calculated using the annual quantity of each waste stream processed and the mean organic concentration of each waste stream managed in the unit.
- (b) Using knowledge of the waste to determine that its total organic concentration is less than 10 ppmw. Documentation of the waste determination is required. Examples of documentation that shall be used to support a determination under this provision include production process information documenting that no organic compounds are used, information that the waste is generated by a process that is identical to a process at the same or another facility that has previously been demonstrated by direct measurement to generate a waste stream having a total organic content less than 10 ppmw, or prior speciation analysis results on the same waste stream where it can also be documented that no process changes have occurred since that analysis that could affect the waste total organic concentration.
3. The determination that distillation, fractionation, thin-film evaporation, solvent extraction, or air or steam stripping operations manage hazardous wastes with time-

weighted, annual average total organic concentrations less than 10 ppmw shall be made as follows:

- (a) By the effective date that the facility becomes subject to the provisions of subsection II.I or by the date when the waste is first managed in a waste management unit, whichever is later, and
 - (b) For continuously generated waste, annually, or
 - (c) Whenever there is a change in the waste being managed or a change in the process that generates or treats the waste.
4. When the permittee and the Commissioner do not agree on whether a distillation, fractionation, thin-film evaporation, solvent extraction, or air or steam stripping operation manages a hazardous waste with organic concentrations of at least 10 ppmw based on knowledge of the waste, the procedures in Method 8240 of SW-846 (Rule 1200-1-11-.01(2)(b)) may be used to resolve the dispute.

Q. AIR EMISSION STANDARDS FOR EQUIPMENT LEAKS

The permittee shall comply with the requirements of Rule 1200-1-11-.06(31), for all equipment that contains or contacts hazardous waste hazardous waste with organic concentrations of at least 10 percent by weight that are managed in units that are subject to this permit, or in any on-site hazardous waste recycling unit.

R. ORGANIC AIR EMISSION STANDARDS

1. Air emission controls must be used for tanks, surface impoundments, containers and miscellaneous units which contact hazardous waste containing an average organic concentration greater than 500 ppmw at the point of origination determined by procedures outlined in Rule 1200-1-11-.06(32)(d)1, except as specifically exempted under Rule 1200-1-11-.06(32)(a) and (c).
2. Prior to installing any tank, container, surface impoundment, or miscellaneous unit subject to Rule 1200-1-11-.06(32) or modifying an existing process handling waste in tanks or containers, such as that the unit(s) will become subject to Rule 1200-1-11-.06(32), the permittee shall apply for a permit modification under Rule 1200-1-11-.07(9)(c)5, and provide specific Part B information required under 1200-1-11-.07(5)(b)13, as applicable, with the modification request.

S. RESTRICTION ON OWNERSHIP OF THE FACILITY

Not applicable for the ORNL units.

- (e) The Commissioner may order that any financial assurance filed by the permittee pursuant to this paragraph (II.N.6) be forfeited to the State if the Commissioner determines that the permittee has failed to perform final closure in accordance with the approved closure plan, Attachment 6, when required to do so. Any such forfeiture action shall follow the procedures provided in paragraph II.N.8 below.

7. Alternate Financial Assurance: In meeting the requirements of paragraph II.N.6 above, the permittee may substitute alternate financial assurance meeting the requirements of paragraph II.N.6 above for the financial assurance already filed with the Division Director. However, the existing financial assurance shall not be released by the Division Director until the substitute financial assurance has been received and approved by him or her.

8. Procedures for Forfeiture of Financial Assurance

- (a) Upon his or her determination that the permittee has failed to perform final closure in accordance with the approved closure plan when required to do so, the Division Director shall cause a notice of non-compliance to be served upon the permittee. Such notice shall be hand delivered or forwarded by certified mail. The notice of non-compliance shall specify in what respects the permittee has failed to perform as required, and shall establish a schedule of compliance leading to compliance with the plan and other permit requirements as soon as possible.
- (b) If the Division Director determines that the permittee has failed to perform as specified in the notice of non-compliance, or as specified in any subsequent compliance agreement which may have been reached by the permittee and the Division Director, the Division Director shall cause a notice of show cause meeting to be served upon the permittee. Such notice shall be signed by the Division Director and either hand-delivered or forwarded by certified mail to the permittee. The notice of show cause meeting shall establish the date, time, and location of a meeting scheduled to provide the permittee with the opportunity to show cause why the Division Director should not pursue forfeiture of the financial assurance filed to guarantee such performance.
- (c) If no mutual compliance agreement is reached at the show cause meeting, or upon the Division Director's determination that the permittee has failed to perform as specified in such agreement that was reached, the Division Director shall request the Commissioner to order forfeiture of the financial assurance filed to guarantee such performance.

- (d) The Commissioner shall order forfeiture of the financial assurance upon his or her validation of the Division Director's determinations and upon his or her determination that the procedures of subparagraphs II.N.8(a), (b) and (c) above have been followed. The Commissioner may however, at his or her discretion, provide opportunity for the permittee to be heard before issuing such order. Upon issuance, a copy of the order shall be hand delivered or forwarded by certified mail to the permittee. Any such order issued by the Commissioner shall become effective 30 days after receipt by the permittee unless it is appealed to the Board as provided in Section 68-212-113 of the Act.
 - (e) If necessary, upon the effective date of the order of forfeiture, the Commissioner shall give notice to the State Attorney General who shall collect the forfeiture.
 - (f) All forfeited funds shall be deposited in a special account within the Tennessee Environmental Protection Fund for use by the Commissioner as set forth in T.C.A. Sections 68-212-108(c)(6) of the Act and 68-203-101 et seq.
9. Liability Requirements: The permittee shall demonstrate financial responsibility for bodily injury and property damage to third parties caused by sudden accidental occurrences arising from operations of the facility or group of facilities, in accordance with the requirements of Rule 1200-1-11-.06(8)(n).
10. Incapacity of the Permittee, Guarantors, or Financial Institutions
- (a) The permittee shall notify the Division Director by certified mail of the commencement of a voluntary or involuntary proceeding under Title 11 (Bankruptcy), U.S. Code, naming the permittee (owner or operator) as debtor, within 10 days after commencement of the proceeding. A guarantor of a corporate guarantee as specified in Rule 1200-1-11-.06(8)(g)8, shall make such a notification if he is named as debtor, as required under the terms of the corporate guarantee (Rule 1200-1-11-.06(8)(p)8).
 - (b) The permittee who fulfills the requirements of paragraphs II.N.6 or 9 above by obtaining a trust fund, surety bond, letter of credit, or insurance policy will be deemed to be without the required financial assurance or liability coverage in the event of bankruptcy of the trustee or issuing institution, or a suspension or revocation of the authority of the trustee institution to act as trustee or of the institution issuing the surety bond, letter of credit, or insurance policy to issue such instruments. The permittee shall establish other financial assurance or liability coverage within 60 days after such an event.

O. LAND DISPOSAL RESTRICTIONS

Tennessee Rule 1200-1-11-.10 identifies hazardous wastes that are prohibited from land disposal and defines those limited circumstances under which an otherwise prohibited waste may continue to be placed in a land treatment, storage or disposal unit. The permittee shall comply with all applicable requirements of Tennessee Rule 1200-1-11-.10. Where the permittee has applied for an extension, waiver or variance under the rule, the permittee shall comply with all applicable restrictions of Rule 1200-1-11-.10 pending final approval of such application.

P. AIR EMISSION STANDARDS FOR PROCESS VENTS

1. The permittee shall comply with the requirements of Rule 1200-1-11-.06(30) for all process vents associated with distillation, fractionation, thin-film evaporation, solvent extraction, or air or steam stripping operations that manage hazardous waste with organic concentrations of at least 10-ppmw, if these operations are conducted in hazardous waste management units subject to this permit and in any on-site hazardous waste recycling unit.
2. To show that a process vent associated with a hazardous waste distillation, fractionation, thin-film evaporation, solvent extraction, or air or steam stripping operation is not subject to the requirements of paragraph II.I.1, the permittee shall make an initial determination that the time-weighted, annual average total organic concentration of the waste managed by the hazardous waste management unit is less than 10 ppmw using one of the following two methods:
 - (a) Direct measurement of the organic concentration of the waste using the following procedures:
 - (i) The permittee shall take a minimum of four grab samples of waste for each waste stream managed in the affected unit under process conditions expected to cause the maximum waste organic concentration.
 - (ii) For waste generated on-site, the grab samples shall be collected at a point before the waste is exposed to the atmosphere such as in an enclosed pipe or other closed system that is used to transfer the waste after generation to the first affected distillation, fractionation, thin-film evaporation, solvent extraction, or air or steam stripping operation. For waste generated off-site, the grab samples shall be collected at the inlet to the first waste management unit that receives the waste provided the waste has been transferred to the facility in a closed system such as a tank truck and the waste is not diluted or mixed with other waste.

- (iii) Each sample shall be analyzed and the total organic concentration of the sample shall be computed using Method 9060 or 8240 of SW-846 (Rule 1200-1-11-.01(2)(b)).
 - (iv) The arithmetic mean of the results of the analyses of the four samples shall apply for each waste stream managed in the unit in determining the time-weighted, annual average total organic concentration of the waste. The time-weighted average is to be calculated using the annual quantity of each waste stream processed and the mean organic concentration of each waste stream managed in the unit.
 - (b) Using knowledge of the waste to determine that its total organic concentration is less than 10 ppmw. Documentation of the waste determination is required. Examples of documentation that shall be used to support a determination under this provision include production process information documenting that no organic compounds are used, information that the waste is generated by a process that is identical to a process at the same or another facility that has previously been demonstrated by direct measurement to generate a waste stream having a total organic content less than 10 ppmw, or prior speciation analysis results on the same waste stream where it can also be documented that no process changes have occurred since that analysis that could affect the waste total organic concentration.
- 3. The determination that distillation, fractionation, thin-film evaporation, solvent extraction, or air or steam stripping operations manage hazardous wastes with time-weighted, annual average total organic concentrations less than 10 ppmw shall be made as follows:
 - (a) By the effective date that the facility becomes subject to the provisions of subsection II.I or by the date when the waste is first managed in a waste management unit, whichever is later, and
 - (b) For continuously generated waste, annually, or
 - (c) Whenever there is a change in the waste being managed or a change in the process that generates or treats the waste.
- 4. When the permittee and the Commissioner do not agree on whether a distillation, fractionation, thin-film evaporation, solvent extraction, or air or steam stripping operation manages a hazardous waste with organic concentrations of at least 10 ppmw based on knowledge of the waste, the procedures in Method 8240 of SW-846 (Rule 1200-1-11-.01(2)(b)) may be used to resolve the dispute.

Q. AIR EMISSION STANDARDS FOR EQUIPMENT LEAKS

The permittee shall comply with the requirements of Rule 1200-1-11-.06(31), for all equipment that contains or contacts hazardous waste hazardous waste with organic concentrations of at least 10 percent by weight that are managed in units that are subject to this permit, or in any on-site hazardous waste recycling unit.

R. ORGANIC AIR EMISSION STANDARDS

1. Air emission controls must be used for tanks, surface impoundments, containers and miscellaneous units which contact hazardous waste containing an average organic concentration greater than 500 ppmw at the point of origination determined by procedures outlined in Rule 1200-1-11-.06(32)(d)1, except as specifically exempted under Rule 1200-1-11-.06(32)(a) and (c).
2. Prior to installing any tank, container, surface impoundment, or miscellaneous unit subject to Rule 1200-1-11-.06(32) or modifying an existing process handling waste in tanks or containers, such as that the unit(s) will become subject to Rule 1200-1-11-.06(32), the permittee shall apply for a permit modification under Rule 1200-1-11-.07(9)(c)5, and provide specific Part B information required under 1200-1-11-.07(5)(b)13, as applicable, with the modification request.

S. RESTRICTION ON OWNERSHIP OF THE FACILITY

Not applicable for the ORNL units.

Permittee: U.S. Department of Energy, Bechtel Jacobs Company LLC, WESKEM, LLC, and Foster Wheeler Environmental Corp.

Facility Name: Oak Ridge National Laboratory

EPA I. D. Number: TN1 89 009 0003

Owner and Operator: U.S. Department of Energy

Co-Operators: Bechtel Jacobs Company LLC, WESKEM, LLC, and Foster Wheeler Environmental Corp.

Permit Number: TNHW-097

III. SPECIFIC CONDITIONS FOR STORAGE IN CONTAINERS

A. WASTE IDENTIFICATION

The permittee may store the following hazardous waste in containers in the unit(s), described in Attachment 7, subject to the terms of this permit:

1. Wastes as listed in Attachment 1.
2. The maximum quantity of hazardous wastes to be stored in the hazardous waste container storage units is as follows:

BUILDING NUMBER	MAXIMUM VOLUME (GALLONS)
7572	220,000
7574	94,800
7576	245,000
7577	219,632
7580	68,000
7823	89,586
7842	94,800
7855	96,433
7878	75,840
7879	114,708
7883	96,433
7884	144,517
WPF PROJECT	
WPF-1 (CHSA)	11,000
WPF-2 (Second Floor WPF)	11,000
WPF-3 (DAC)	38,500
WPF-4 (First Floor WPF)	5,500
WPF-5 (CSA)	36,300
WPF-6 (CHMB)	66,000

3. The Permittee is prohibited from storing, in containers, any hazardous waste that is not identified in Attachment 1.

B. CONDITION OF CONTAINERS

If a container holding hazardous waste is not in good condition (e.g., severe rusting, apparent structural defects) or if it begins to leak, the permittee shall transfer the hazardous waste from this container to a container that is in good condition or otherwise manage the waste in some other way that complies with the conditions of this permit.

C. COMPATIBILITY OF WASTE WITH CONTAINERS

The permittee shall use a container made of or lined with materials which will not react with, and are otherwise compatible with, the hazardous waste to be stored, so that the ability of the container to contain the waste is not impaired.

D. MANAGEMENT OF CONTAINERS

1. Containers of hazardous waste shall be managed as described in Attachment 7.
2. The permittee shall assure that containers holding hazardous waste are always closed during storage, except when necessary to add or remove waste.
3. The permittee shall assure that a container holding hazardous waste shall not be opened, handled or stored in a manner which may rupture the container or cause it to leak.
4. If the container storage unit is storing any quantity of hazardous waste which contains free liquids, the permittee shall place all containers on pallets, or similar devices, which elevate the containers above the floor or place the containers on a sloped floor to drain and remove liquids.
5. TDEC has approved ORNL's request for waivers of the aisle space requirements for the RH-TRU and Class III/IV waste storage units (refer to Attachment 3, Section 3-1a). The permittee shall maintain aisle space as required by Attachment 3 within the container management units in manner consistent with the requirements of paragraph II.H.5, and as required by Attachment 3 regarding the dimensions of the primary and secondary aisles.
6. Where applicable in Attachment 3, Section 3-1a, the permittee shall arrange palletized waste in rows to facilitate inspections of the containers and the base underlying the containers.

7. When ignitable or reactive hazardous waste are stored, nonsparking tools and equipment shall be used and personnel shall use nonsparking clothing and personnel protective equipment. (See subsection II.G. for additional requirements.)

E. INSPECTION OF THE CONTAINER MANAGEMENT UNIT(S)

1. TDEC has approved ORNL's requested waivers of the weekly inspection requirements for storage of RH-TRU, CH-TRU, high-activity LLW, or Class III/IV wastes (refer to Attachment 3, Section 3-1a). At least weekly or as required in Attachment 3, the permittee shall inspect areas where low-activity LLW containers are stored, looking for leaking containers and for deterioration of containers and the containment system caused by corrosion or other factors.

The WPF, at least weekly, or as required in Attachment 3, shall inspect areas where containers are stored, looking for leaking containers and for deterioration of containers and the containment system caused by corrosion or other factors

2. The permittee shall inspect the containment system daily when in use (limited to when wastes are moved and loading/unloading areas) for the presence of any release of hazardous waste or accumulated precipitation as described in the examples of inspection checklists for each unit in Attachment 3. For the purpose of this permit condition, "each operating day" (or "daily during use") is equivalent to "daily when in use" and means when wastes are being moved and, there, subject to spills.

F. CONTAINMENT, DETECTION, AND MANAGEMENT OF LEAKS OR SPILLS

1. TDEC has approved ORNL's request for waivers of the containment system requirements for the RH-TRU and high-activity LLW, and Class III/IV waste storage units (refer to Attachment 7, Section 7-1a). The permittee shall ensure that the CH-TRU and low-activity LLW container storage areas have a containment system that is designed and operated in accordance with paragraph III.F.2 below, and is constructed and maintained as specified in the plans and specifications found in Attachment 7. When normal maintenance or replacement of equipment or minor piping rearrangements are necessary to properly operate the facility, the permittee shall use parts or items which meet or exceed the performance standards of those set forth in the attachments. If parts or items are to be used which do not meet or exceed the standards set forth in the attachments, prior approval from the Commissioner shall be required.
2. The permittee shall ensure that the CH-TRU and low-activity LLW container management units have a containment system that is designed, operated and

maintained such that at all times the unit is in operation as indicated in Attachment 7.

- (a) A base shall underlie the containers which is free of cracks or gaps and is sufficiently impervious to contain leaks, spills, and accumulated precipitation until the collected material is detected and removed;
- (b) The base shall be sloped or the containment system shall be otherwise designed and operated to drain and remove liquids resulting from leaks, spills, or precipitation, unless the containers are elevated or are otherwise protected from contact with accumulated liquids;
- (c) The containment system shall have sufficient capacity to contain 10% of the volume of containers or the volume of the largest container, whichever is greater. Containers that do not contain free liquids need not be considered in this determination;
- (d) Run-on into the containment system shall be prevented unless the collection system has sufficient excess capacity in addition to that required in subparagraph III.F.2.(c) above to contain any run-on which might enter the system; and
- (e) Spilled or leaked waste and accumulated precipitation shall be removed from the sump or collection area in as timely manner as necessary to prevent overflow of the collection system.
- (f) A **waiver** is for the alternate secondary containment standards equivalent to the above Conditions 2(a) to 2(e) for Building 7823 during the Melton Valley TRU Waste Removal Project. The secondary containment standards consisting of up to a total of five steel overpacks containing concrete casks subject to this permit, will be stored in Building 7823. These steel overpacks (as described in Attachment 7) are lined with a minimum 6-mil polyethylene bag. The concrete casks will have been retrieved and overpacked from the waste from the 22 trenches in Solid Waste Storage Area 5 North (SWSA 5N) during the Melton Valley TRU Waste Removal (MVTWR) Project. If additional steel overpacks consisting of concrete casks are required for this project to be stored in Building 7823 subject to the terms of this permit, the permittee would be required to request an additional waiver within seven days of commencement of storage in this building. The permittee shall provide the Division quarterly scheduling for processing and/or disposal of the wastes in the cask overpacks. Items (a) through (e) for this project are not required when the waste is stored in an overpack container sufficiently impervious to

contain leaks, spills, and accumulated precipitation and the capacity to contain 100 percent of the volume of the waste.

3. In addition to the requirements of subparagraph III.F.2.(e), spilled or leaked waste, accumulated precipitation must be removed in as timely a manner as possible as is necessary to prevent overflow of the collection system and wash waters must be removed from the containment system within 24 hours of discovery, or in as timely a manner as is possible to prevent harm to human health and the environment if the permittee can demonstrate that removal of the released waste and/or accumulated waters could not be accomplished within 24 hours.
 - (a) The permittee shall have available at all times at least one portable pump (dedicated to the hazardous waste management units) and necessary appurtenances (e.g., hoses) for use in removing liquids from the containment systems. For hazardous waste container management units where ignitable wastes are stored, these pumps shall be of a type that will not generate heat or sparks that might result in ignitable vapors, and shall be maintained in proper working order.
 - (b) The permittee shall determine if the collected materials are hazardous wastes in accordance with Rule 1200-1-11-.03(1)(b). Unless the permittee can demonstrate in accordance with Rule 1200-1-11-.02 (1)(c)4 that the collected material removed from the containment system is not a hazardous waste, the permittee becomes a generator of hazardous waste and shall manage it in accordance with all applicable requirements of Rules 1200-1-11-.03 through 1200-1-11-.10.

G. SPECIAL REQUIREMENTS FOR IGNITABLE OR REACTIVE WASTE

The permittee shall not locate containers holding ignitable or reactive waste within 15 meters (50 feet) of the facility's property line.

H. SPECIAL REQUIREMENTS FOR INCOMPATIBLE WASTES

The permittee must ensure that:

1. Incompatible wastes, or incompatible wastes and materials, are not placed into the same container, unless paragraph II.G.2 is complied with.
2. Hazardous wastes are not placed in an unwashed container that previously held an incompatible waste or material.
3. A storage container holding a hazardous waste that is incompatible with any waste or other materials stored nearby in other containers, piles, open tanks, or surface

impoundments is separated from the other materials or protected from them by means of a dike, berm, wall, or other device.

I. CLOSURE OF THE CONTAINER MANAGEMENT UNIT(S)

At closure, the permittee shall remove all hazardous waste and hazardous waste residues from the containment system. Remaining containers, liners, bases, and soil containing or contaminated with hazardous waste or hazardous waste residues shall be decontaminated or removed. At closure, as throughout the operating period, unless the permittee can demonstrate in accordance with Rule 1200-1-11-.03(1)(b) that the wastes removed from the containment system is not a hazardous waste, the permittee becomes a generator of hazardous waste and shall manage it in accordance with all applicable requirements of Rule Chapter 1200-1-11. (See subsection II.L for additional requirement regarding closure.)

Permittee: U.S. Department of Energy, Bechtel Jacobs Company LLC, WESKEM, LLC,
and Foster Wheeler Environmental Corp.

Facility Name: Oak Ridge National Laboratory

EPA I. D. Number: TN1 89 009 0003

Owner and Operator: U.S. Department of Energy

Co-Operator: Foster Wheeler Environmental Corp.

Permit Number: TNHW-097

IV. SPECIFIC CONDITIONS FOR PHYSICAL AND CHEMICAL TREATMENT

A. WASTE IDENTIFICATION

The permittee may treat the following hazardous wastes as described in Attachment 8, subject to the terms of this permit:

1. Wastes as listed in Attachment 1.

2.

Unit Identification	Capacity
T1 – Macroencapsulation	1000 cubic feet per hour
T-2 – Amalgamation Treatment	10 pounds per hour
T-3 – Solidification/Stabilization Treatment	50 gallons per day

B. GENERAL OPERATING REQUIREMENTS

1. Physical treatment of hazardous waste must comply with Rule 1200-01-11-.05 (2)(h)2.

2. Hazardous wastes or treatment reagents must not be placed in the treatment process or equipment if they could cause the treatment process or equipment to rupture, leak, corrode, or otherwise fail before the end of its intended life.

C. WASTE ANALYSIS AND TRIAL TESTS

In addition to the waste analysis required by Rule 1200-01-11-.05(2)(d), whenever a hazardous waste which is substantially different from waste previously treated in a treatment process or equipment at the facility is to be treated in that process or equipment or whenever a substantially different process from any previously used at the facility is to be used chemically to treat hazardous waste, before treating the different waste or using the different process or equipment, the owner or operator must:

1. Conduct waste analyses and trial treatment tests (e.g., bench scale or pilot plant scale tests); or

2. Obtain written, documented information on similar treatment on similar waste under similar operating conditions to show that this proposed treatment will meet all applicable requirements of Subsections IV.B.1 and 2 above

D. INSPECTIONS

1. The owner or operator of a treatment facility must inspect, where present:
 - (a) Discharge control and safety equipment (e.g., waste feed cut-off systems, bypass systems, drainage systems, and pressure relief systems) at least once each operating day, to ensure that it is in good working order;
 - (b) Data gathered from monitoring equipment (e.g., voltage gauge) at least once each operating day, to ensure that the treatment process or equipment is being operated according to its design;
 - (c) The construction materials of the treatment process or equipment, at least once each operating day, to detect corrosion or leaking of fixtures or seams; and
 - (d) The construction materials of, and the area immediately surrounding, discharge confinement structures (e.g., dikes), at least weekly, to detect erosion or obvious signs of leakage (e.g., wet spots or dead vegetation).

E. CLOSURE

1. At closure all hazardous waste and hazardous waste residues must be removed from treatment processes or equipment, discharge control equipment, and discharge confinement structures.

F. SPECIAL REQUIREMENTS FOR IGNITABLE OR REACTIVE WASTE

1. Ignitable or reactive waste must not be placed in a treatment process or equipment unless:
 - (a) The waste is treated, rendered, or mixed before or immediately after placement in the treatment process or equipment so that
 - (i) The resulting waste, mixture, or dissolution of material no longer meets the definition of ignitable or reactive waste under Rule 1200-1-11-.02(3)(b) or (d); and
 - (ii) Rule 1200-1-11-.05(2)(h)2 is complied with; or

- (b) The waste is treated in such a way that it is protected from any material or conditions that may cause the waste to ignite or react.

G. SPECIAL REQUIREMENTS FOR INCOMPATIBLE WASTES

1. Incompatible wastes, or incompatible wastes and materials, must not be placed in the same treatment process or equipment, unless 200-1-11-.05(2)(h)2 is complied with.
2. Hazardous wastes are not placed in unwashed treatment equipment which previously held an incompatible waste or material, unless Rule 200-1-11-.05(2)(h)2 is complied with.

**Permittee: U.S. Department of Energy, Bechtel Jacobs Company LLC, WESKEM, LLC,
and Foster Wheeler Environmental Corp.**

Facility Name: Oak Ridge National Laboratory

Owner and Operator: U.S. Department of Energy

**Co-Operators: Bechtel Jacobs Company LLC, WESKEM, LLC, and Foster Wheeler
Environmental Corp.**

EPA Identification Number: TN1 89 009 0003

Permit Number: TNHW-097

V. SCHEDULE OF COMPLIANCE

- A. Prior to initiation of construction/installation of any new hazardous waste management units or modification of existing hazardous waste management units authorized by this permit, the permittee shall provide to the Division Director:
1. Written notification clearly describing the portions of the facility to be constructed/installed and the planned schedule of construction and/or installation, itemized by phase of work; and
 2. At least two (2) sets of detailed construction drawings and specifications (for the phase of construction to be commenced).
 3. The Construction Inspection Fee(s) applicable to the new hazardous waste management unit(s) prior to new construction under Tennessee Rule 1200-1-11-.08(6).
- B. The Division Director may review the notification and detailed construction plans and specifications received pursuant to paragraph VII.A.1 above for compliance with the terms of the permit and provide written comments to the permittee identifying any compliance concerns arising from such review. Any such comments shall be issued by the Division Director within thirty (30) days of the Division's receipt of such notification and detailed plans and specifications.
- C. During the 30-day review and comment period set forth in paragraph VII.A.2 above, the permittee may commence construction. However, prior to initiating operation of the constructed new/modified unit, the permittee must address, to the Division Director's satisfaction, any compliance concerns identified in any written comments received from the Division Director pursuant to paragraph VII.A.2 above.
- D. Prior to initiation of any phase of construction/installation of any units or prior to any storage or treatment of hazardous waste, the permittee shall comply with Rule 1200-1-11-.06(32).

ATTACHMENT 1 WASTE ANALYSIS PLAN

This section of the permit describes the chemical and physical nature of the mixed wastes that may be stored in the units contained in this document. It also describes the waste analysis plan for sampling, testing, and evaluating the waste to assure that sufficient information is available for proper waste management. Some of the hazardous and/or mixed wastes to be managed in these units have been generated in recent years or will be generated in the future. However, most of the wastes that are currently being stored were generated prior to 1985 [when it was determined that the Resource Conservation and Recovery Act (RCRA) applied to DOE facilities]. This section focuses on waste characterization and analysis requirements for newly generated wastes. Due to frequent changes in the regulatory requirements for waste identification, additional characterization of some of these previously generated wastes may be needed before shipment to an off-site facility for treatment, storage, or disposal. This section focuses on the waste analysis plan for evaluating newly generated wastes; however, the plan will also be used, as necessary, as the basis for characterizing and evaluating previously generated wastes before transfer to other DOE or commercial facilities.

1-1 CHEMICAL AND PHYSICAL ANALYSES

Background

ORNL activities are conducted in accordance with as low as reasonably achievable (ALARA) objectives. The basic philosophy of ALARA includes reducing personnel exposure to harmful materials to ALARA levels, maintaining the generation of wastes to ALARA levels, and controlling releases of radioactive and other environmentally deleterious materials to ALARA levels.

ORNL activities are also conducted in accordance with applicable site and DOE policies regarding protection of the environment and personnel, as well as regulations under the Atomic Energy Act (AEA). This includes adherence to applicable procedures for radiological protection, environmental protection, industrial hygiene, and safety.

General Description of the Waste

TRU waste is defined in DOE Order 435.1 as a radioactive waste contaminated with radionuclides that exhibit the following characteristics:

- atomic number greater than 92,
- alpha-emitting,
- half-life greater than 20 years, and
- concentration greater than 100 nanocuries/gram (nCi/g) at the time of assay.

Other wastes that have similar hazards but do not meet all the requirements may also be managed as TRU waste. ORNL manages curium (Cm)-244, uranium (U)-233, and californium (Cf)-252 as TRU isotopes.

TRU wastes are classified as CH-TRU wastes and RH-TRU wastes. CH-TRU wastes are defined in DOE Order 435.1 as TRU wastes with a measured radiation dose rate at the container surface not exceeding 200 millirems/hour (mrem/h). RH-TRU wastes are those having a measured radiation dose rate at the container surface exceeding 200 mrem/h.

LLW is waste that contains radioactivity and is not classified as high-level waste, TRU waste, spent fuel, or by-product material. Generally CH-LLW will have a radiation dose rate at the container surface below 200 mrem/h.

The majority of wastes stored, or to be stored, in these units are generated at ORNL. Only small amounts of wastes stored in these units will be received from DOE owned off-site¹ facilities. The following language regarding off-site¹ waste stored on the ORR was negotiated by counsel for TDEC, DOE, and Martin Marietta Energy Systems, Inc. (on 8/5/93):

- (a) The permittee is only allowed to store hazardous waste generated by DOE on-site¹ and/or generated by DOE owned off-site¹ facilities. Hazardous waste received from DOE owned off-site¹ facilities and placed in storage for more than thirty (30) days, may only be stored incidental to its treatment, and the volume of all such waste in storage more than thirty (30) days may not exceed 10% of the total on-site¹ permitted and interim status storage capacity.
- (b) As used in paragraph (a) above, "on-site" means areas within the ORR, and "off-site"¹ means all areas that are not within the ORR. The ORR is 34,600 acres of federally owned land in the city of Oak Ridge located in Anderson and Roane Counties, Tennessee.
- (c) The Division Director² may authorize LMES to store hazardous waste generated at DOE owned off-site¹ facilities in excess of the limits set in paragraph (a). Any authorization pursuant to this paragraph must be in writing.

¹ The definitions provided in these paragraphs for on-site and off-site used above only apply to those terms duly footnoted. Throughout the remainder of this document, the applicable regulatory definitions apply to each of these terms.

² Refers to the Division Director of TDEC, Division of Solid Waste Management.

RH-TRU Waste. The RH-TRU wastes stored, or to be stored, in the RH-TRU units can be described as primarily solids such as metal, plastic, cloth, paper, and glass materials. Small amounts of free liquids (estimated at 0.05 to 1% of the total waste volume) could occasionally be present in the casks generated before 1986. These materials are generated from operations and experiments conducted in hot cells using radioisotopes and are common to wet chemistry laboratories.

Most of the RH-TRU waste (approximately 90%) has been generated on-site in Buildings 7920 and 7930. The remaining 10% of the RH-TRU waste has been generated on-site in Buildings 3019 and 3038. The bulk of the RH-TRU waste is generated from Cf-252 neutron source preparation and recovery operations for Cf, berkelium (Bk), and einsteinium (Es) which are carried out in Buildings 7920 and 7930.

Free liquid, when present in the older casks, primarily consists of closed bottles of dilute acidic solutions from hot cell operations and washwater from hot cell cleaning operations. WAC are in place for newly generated RH-TRU wastes to ensure that free liquids will be limited to less than 1% of the volume of newly generated wastes. Generators submit waste disposal forms to the Waste Operations (WO) Group, who then check those disposal forms to ensure that the WAC are met. Generators list and estimate the weight or volume of any RCRA components placed in the casks, including underlying hazardous constituents (UHCs), where applicable.

Hazardous Characteristics

Some of the RH-TRU waste stored, or to be stored, in the RH-TRU units is, or will be, classified as hazardous due to the presence of elemental lead, mercury, cadmium, or other RCRA metals in some of the storage casks.

The lead that may be included in the RH-TRU waste material was used as radiation shielding in the form of disks or sheets used to line plastic buckets; "pigs" or sheaths containing empty contaminated vials; or bricks used as counter weights within the hot cells and has become radioactively contaminated. While the form and quantity of lead may vary widely in each cask (some casks may not contain any lead), it is estimated that 100 lb (45.3 kg) or less of elemental lead is present in those casks containing lead.

Small amounts of elemental mercury from discarded mercury vapor lamps and thermometers used in the hot cell operations are contained in some of the casks. Other RCRA constituents (metals, including cadmium, solvent wipes, etc.) could be present in these RH-TRU wastes from hot cell operations. Applicable RCRA waste codes for wastes that may be stored in the RH-TRU units are presented in Table 1-1.

The RCRA components of the RH-TRU wastes represent approximately 5% of the total waste volume, and their hazard is minor compared to the hazard associated with the radiological contaminants present. The primary threat to human health and environment resulting from potential releases of RH-TRU wastes would be radiological.

Basis for Designation

The hazard designation for the RH-TRU waste stored, or to be stored, in the RH-TRU units is based on process knowledge of the on-site generated waste streams. The presence of elemental lead, mercury, cadmium or other RCRA metals is the primary basis for the hazard designation. However, it is possible that other RCRA constituents (metals, solvent wipes, etc.) could be present in the RH-TRU wastes from hot cell operations.

Table 1-1. Waste codes for RCRA wastes stored in the RH-TRU and CH-TRU units

Waste code/ designation	Hazard constituent or classification	RH-TRU units	CH-TRU units	WPF RH and CH units
D001	Ignitability	Yes	Yes	Yes
D002	Corrosivity	Yes	Yes	Yes
D003	Reactivity	Yes	Yes ¹	Yes ¹
D004-D043	Toxicity characteristic (TC)	Yes	Yes	Yes
F Series	Wastes from nonspecific sources	Yes	Yes	Yes
P or U Series ²	Commercial chemical products, off-specification species, container residues, or spill residues	Yes	Yes	Yes
PCBs	Polychlorinated biphenyls	Yes	Yes	Yes

¹ Only waste generated prior to 1986

² Includes newly listed waste codes per 60 Federal Register 7824, 60 Federal Register 19165, 62 Federal Register 7502, and 63 Federal Register 24595.

Laboratory Report on Analytical Results

Due to radiological hazards, laboratory analyses are not performed on the RH-TRU wastes. Based on process knowledge, lead from lead shielding, mercury from discarded mercury vapor lamps and thermometers, and possibly other RCRA constituents, including UHCs, are expected. The major source of RCRA material would be the lead that has been co-disposed with solid radioactive waste.

CH-TRU Waste. The CH-TRU wastes to be stored in the CH-TRU units can be described as primarily solids such as metal, plastic, cloth, paper, and glass materials. Other potential CH-TRU mixed waste forms may include sludges, aerosol cans, gas cylinders, solvent wipes, or liquids (believed to be washwater).

The newly generated on-site materials are from activities conducted in ORNL glove box facilities and are common to wet chemistry laboratories. Some of the CH-TRU waste to be stored in the CH-TRU units has been generated off-site from the decontamination and decommissioning activities at NFS in Erwin, Tennessee.

WAC are in place for newly generated CH-TRU wastes to ensure that free liquids will be limited to less than 1% of the volume of newly packaged wastes. Generators submit waste disposal forms to the Waste Operations (WO) Group who then check the disposal forms to ensure that the WAC are met. WO staff may use real-time radiography equipment to verify that the WAC are met for ORNL's newly generated CH-TRU wastes. Generators list and estimate the weight or volume of all RCRA components placed in the containers, including UHCs where applicable. Free liquids, estimated at 0.05 to 1% of the total waste volume, could occasionally be present in containers generated before 1986. The liquid primarily consists of closed bottles of dilute acidic solutions from hot cell operations and washwater from glove box and hot cell cleaning operations.

Hazardous Characteristics

Some of the CH-TRU waste stored, or to be stored, in the CH-TRU units may contain small amounts of RCRA components. The volume of the RCRA components is minimal compared to the total CH-TRU waste volume.

Historically, lead has occasionally been co-disposed with solid radioactive waste. The lead was used as radiation shielding, in the form of disks or sheets used to line plastic buckets, "pigs" or

sheaths containing empty contaminated vials, or bricks used as counter weights within the glove boxes or hot cells.

Mercury in discarded mercury vapor lamps or thermometers used in hot cell operations may also be present. Applicable RCRA waste codes for wastes that may be stored in these units are presented in Table 1-1.

The RCRA components in the wastes stored in the CH-TRU units represent approximately 30% or less of the total waste volume, and their hazard is minor compared to the hazard associated with the radiological contaminants present. The primary threat to human health and environment resulting from potential releases from these units would be radiological.

Basis for Designation

Some of the waste stored, or to be stored, in the CH-TRU units is, or will be, classified as hazardous due to the presence of elemental lead, mercury, cadmium, or other RCRA metals. The hazard designation for the CH-TRU waste is based on process knowledge of the generated waste streams. Process knowledge of the presence of elemental lead from radiation shielding, elemental mercury from discarded mercury vapor lamps and thermometers, and cadmium used in hot cell research are the primary basis for the hazard designation. Other RCRA constituents (metals, waste oils, spill residues, solvent wipes, etc.) may possibly be present in the wastes stored in the CH-TRU units. Analytical testing for CH-TRU wastes generated at off-site facilities (such as NFS) is conducted on individual waste streams.

Laboratory Report on Analytical Results

Due to radiological hazards and the availability of process knowledge, laboratory analyses are not performed on the CH-TRU wastes generated on-site. Based on process knowledge, lead from lead shielding, mercury from discarded mercury vapor lamps and thermometers, and possibly other RCRA constituents, including UHCs, are expected. Characterization and classification information from off-site generators such as NFS will be supplied with every shipment.

Mixed LLW

High-Activity Mixed LLW. The high-activity mixed LLW to be stored in the RH-TRU or CH-TRU waste storage units are predominantly solids, such as metals, cloth, paper, and glass materials. Other potential high-activity mixed LLW forms include sludges, soils, spill residues, solvent wipes, aerosol cans, gas cylinders, and/or liquids from operations and experiments conducted

in glove boxes or from other ORNL processes. High-activity mixed LLW will generally have a radiation dose rate at the container surface greater than 10 mrem/h. When stored in any of the units covered by this document, the high-activity mixed LLW will be stored in the same areas as the TRU waste and will be inspected on the same schedule.

WAC are in place for newly generated high-activity mixed LLW to ensure that free liquids will be limited to less than 1% of the volume of newly packaged wastes. Generators submit waste disposal forms to the WO Group who then check the disposal forms to ensure the WAC are met. Additionally WO staff can verify that the WAC are met for ORNL's newly generated high-activity LLW containers using real-time radiography equipment. Generators will also be required to list and estimate the weight or volume of all RCRA components placed in the containers, including UHCs. Free liquids, estimated at 0.05 to 1% of the total waste volume, could occasionally be present in containers generated before 1986. The liquid primarily consists of closed bottles of dilute acidic solutions from hot cell operations and washwater from glove box and hot cell cleaning operations.

Low-Activity LLW. The low-activity mixed LLW that may be stored in any of the CH-TRU or RH-TRU units may include, but is not limited to, RCRA-regulated waste oils, lab packs, soils, sludges, wastewaters, spill residues, solvent wipes, aerosol cans, gas cylinders, and/or liquids from operations and experiments conducted in glove boxes or from other ORNL processes. Low-activity LLW will generally have a radiation dose rate at the container surface of 10 mrem/h or less. When stored in any of the units covered by this document, the low-activity mixed LLW will be segregated from the TRU wastes.

WAC are in place for newly generated low-activity mixed LLW. Generators submit waste disposal forms to the WO Group who then check the disposal forms to ensure the WAC are met. Generators will also be required to list and estimate the weight or volume of all RCRA components placed in the containers, including UHCs.

Hazardous Characteristics

Some of the high-activity LLW stored, or to be stored, in any of these units may contain some RCRA hazardous components, including UHCs, and be classified as mixed waste. Applicable RCRA waste codes for wastes that may be stored in these units are presented in Table 1-1. The RCRA components in the high-activity mixed LLW stored, or to be stored, in these units represent approximately 30% or less of the total waste volume, and their hazard is minor compared to the hazard associated with the radiological contaminants present. The primary threat to human health and environment resulting from potential releases from these units would be radiological.

The RCRA components in the low-activity mixed LLW that may be stored in the CH-TRU or RH-TRU units may include: ignitable liquids/solids (D001), poisonous liquids/solids, corrosive liquids/solids (D002), reactive wastes (D003), spent solvents and electroplating wastes (F001 - F019), TC wastes (D004 - D043), dioxin or other F-listed wastes (F020 - F039), and P- and U-listed wastes. The RCRA components in the low-activity wastes may represent as much as 100% of the total waste volume.

Basis for Designation

Some of the waste stored, or to be stored, in these units is, or will be, classified as hazardous due to the presence of elemental lead, mercury, cadmium, or other RCRA components. The hazard designation for the mixed LLW waste is based on the generator's process knowledge of the waste streams (known constituents, known chemical or physical properties, known processes, etc.), analysis of the waste stream, or a combination of both. Process knowledge of the presence of elemental lead from radiation shielding, elemental mercury from discarded mercury vapor lamps and thermometers, and cadmium used in glove box or hot cell research are the primary basis for the hazard designation. Other RCRA constituents (metals, waste oils, spill residues, solvent wipes, etc.) may possibly be present in the low-activity mixed LLW stored in these units.

Laboratory Report on Analytical Results

When process knowledge is not adequate to fully characterize the low-activity LLW, analysis will provide the information necessary to treat, store, or dispose of the wastes in accordance with RCRA standards. Examples of typical analytical results for the low-activity LLW to be stored in these units is included in Appendix 1-1.

1-1a Containers

RH-TRU Waste. Based on review of 40 CFR Part 261, Subparts C and D and TN Rule 1200-1-11-.02(3) and (4), the following constituents are present in the waste stored, or to be stored, in the RH-TRU waste storage units and may qualify the waste as hazardous:

- ignitable (D001);
- corrosive (D002);
- TC constituents (D004 - D043);
- wastes from non-specific sources (F series); and
- commercial chemical products, container residues, off-specification species or spill residues (P or U series).

Some RH-TRU waste may contain sufficient concentrations of polychlorinated biphenyls (PCBs) to warrant management under the Toxic Substances Control Act (TSCA). These wastes could include solids, liquids, and/or sludges.

Most RH-TRU waste generated at ORNL for storage in Buildings 7855, 7883, and 7884 is contained in 1-gal (3.8-L) mild-steel containers, overpacked and heat-sealed in 4-gal (15.1-L) plastic buckets, and stored in concrete casks (i.e., triply contained). Attachment 7 discusses the concrete casks in detail.

The RH-TRU wastes regulated under RCRA are stable solid wastes, primarily lead, mercury, or cadmium which are compatible with their containers (primarily metal cans, overpacked and heat sealed in plastic buckets, and placed within concrete casks). Other RH-TRU wastes that are too large to be placed within the metal cans are wrapped with several layers of plastic and sealed before being placed in concrete casks. RH-TRU wastes packaged in fiber or steel drums are also compatible with their containers. Moreover, the RH-TRU wastes do not fall into any of the categories listed in 40 CFR Part 264 Appendix V, *Examples of Potentially Incompatible Waste*, TN Rule 1200-1-11-.06(33)(a)1. Since the wastes are compatible, violent reactions will not occur during handling or storage. Compatibility of the wastes and containers can be inferred from ORNL's operating experience with Building 7855. No deterioration (i.e., release of waste or excessive radiation) of the concrete casks has been noted for the casks stored at that unit during its 16 years of operation.

No additional types of hazardous wastes will be accepted at the RH-TRU waste storage units within the limits of administrative controls that exclude other RCRA materials from newly packaged RH-TRU wastes. WAC (see Section 1-2) for newly packaged RH-TRU waste to be stored in RH-TRU waste storage units will *exclude* the following materials:

- reactive waste (D003);
- TRU waste containing free liquids greater than 1% of the waste volume;
- explosives or compressed gases as defined by 49 CFR 173, Subparts D and G;
- pyrophoric materials (excluding radionuclides) that have not been rendered safe by mixing with chemically stable materials or processed to remove the hazardous properties;
- water reactive wastes;
- K-listed wastes; or
- dioxins.

CH-TRU Waste. Based on review of 40 CFR Part 261, Subparts C and D and TN Rule 1200-1-11-.02(3) and (4), the following constituents are present in some of the waste stored, or to be stored, in the CH-TRU waste storage units and may qualify the waste as hazardous:

- ignitable (D001);
- corrosive (D002);
- reactive (D003) (for waste generated prior to 1986);
- TC constituents (D004-D043);
- wastes from non-specific sources (F series); or
- commercial chemical products, container residues, off-specification sources, or spill residues (P or U series).

Some wastes may also contain sufficient concentrations of polychlorinated biphenyls (PCBs) to warrant their management under the Toxic Substances Control Act (TSCA). Wastes could include solids, liquids, and/or sludges.

The CH-TRU waste stored in the CH-TRU waste storage units is, or will be, contained in steel 55-gal drums, overpack drums (both DOT-approved), ~~as well as metal boxes~~, or metal boxes of varying sizes.

The CH-TRU wastes will be compatible with the storage containers. Waste will typically be handled in steel drums. The drums are constructed of either carbon or stainless steel. The individual generators determine the compatibility of material to be stored.

ORNL is not proposing any new hazardous waste processes or waste streams not listed on the ORNL Part A Permit Application with regard to the CH-TRU waste storage units. The newly generated CH-TRU wastes which will be accepted at the CH-TRU waste storage units will typically contain metals such as lead, mercury, and/or cadmium. Older drums from the closure of Buildings 7826 and 7834 may also contain sludges, aerosol cans, gas cylinders, solvent wipes, etc. Within the limits of administrative controls at ORNL, prohibited RCRA materials (i.e., D003, dioxins, etc.) are to be eliminated from newly generated CH-TRU wastes. WAC (see Section 1-2) for newly generated CH-TRU waste to be stored in the CH-TRU waste storage units currently *exclude* the following materials:

- reactive waste (D003);
- TRU waste containing free liquids greater than 1% of the waste volume;
- explosives or compressed gases as defined by 49 CFR 173, Subparts D and G;
- pyrophoric materials (excluding radionuclides) that have not been rendered safe by mixing with chemically stable materials or processed to remove the hazardous properties;
- water reactive wastes;

- K-listed waste; or
- dioxins.

High-Activity Mixed LLW

Based on review of 40 CFR Part 261, Subparts C and D and TN Rule 1200-1-11.02(3) and (4), the following constituents are present in some of the high-activity mixed LLW stored, or to be stored, in any of these units and may qualify the waste as hazardous:

- ignitable (D001);
- corrosive (D002);
- TC constituents (D004-D043);
- wastes from non-specific sources (F series); or
- commercial chemical products, container residues, off-specification sources, or spill residues (P or U series).

Some high-activity LLW may contain sufficient concentrations of PCBs to warrant management under TSCA. Wastes could include solids, liquids and/or sludges.

The high-activity mixed LLW stored, or to be stored, in any of these units is, or will be, contained in DOT-approved 30-gal or 55-gal, and/or overpack drums or metal boxes of varying sizes.

The high-activity mixed LLW will be compatible with the storage containers. Waste will typically be handled in carbon steel or stainless steel drums. The individual generators determine the compatibility of the containers with material to be stored.

WAC (see Section 1-2) for newly generated high-activity mixed LLW to be stored in any of these units currently *exclude* the following materials:

- explosives or compressed gases as defined by 49 CFR 173, Subparts D and G;
- pyrophoric materials (excluding radionuclides) that have not been rendered safe by mixing with chemically stable materials or processed to remove the hazardous properties;
- water reactive wastes;
- K-listed wastes; or
- dioxins.

Low-Activity Mixed LLW

Based on review of 40 CFR Part 261, Subparts C and D and TN Rule 1200-1-11.02(3) and (4), the following constituents are present in some of the low-activity LLW stored, or to be stored, in any of the CH-TRU or RH-TRU units and may qualify the waste as hazardous:

- ignitable (D001);
- corrosive (D002);
- TC constituents (D004-D043);
- wastes from non-specific sources (F series); or
- commercial chemical products, container residues, off-specification sources, or spill residues (P or U series).

Some low-activity mixed LLW may contain sufficient concentrations of PCBs to warrant management under TSCA. Wastes could include solids, liquids (wastewaters, oils, etc.), aerosol cans, gas cylinders, spill residues, soils, or lab packs.

The low-activity mixed LLW stored, or to be stored, in any of these units is, or will be, contained in DOT-approved 30-gal or 55-gal, and/or overpack drums or metal boxes of varying sizes.

The low-activity mixed LLW will be compatible with the storage containers. Waste will typically be handled in DOT-approved drums or in bottles, metal cans, or polyethylene tanks until the waste is transferred to a DOT-approved container. The individual generators determine the compatibility of the containers with material to be stored.

1-2 WASTE ANALYSIS PLAN

This waste analysis plan is included to describe the procedures for determining a waste's chemical, physical, and radiological characteristics. Characterization is necessary to ensure proper management of the waste and to comply with EPA and TDEC land disposal restrictions. Waste analysis parameters and rationale are summarized in Tables 1-2 and 1-3.

1-2a Parameters and Rationale

RH-TRU Waste. Identification of RCRA components in the RH-TRU wastes will be based on applied knowledge of the hazardous characteristics of the waste and/or knowledge of the materials or processes used. Adequate documentation will be maintained on-site at ORNL in the operating records for the RH-TRU waste storage

**Table 1-2. Waste analysis parameters and rationale
RH-TRU wastes**

Rationale for testing	Required test parameter	Typically determined by¹
Handling, safety, and compatibility	Radiation-alpha, beta, gamma, neutrons, isotopes ²	Knowledge, analysis
	Flash point	Knowledge
	Reactivity	Knowledge
	TC	Knowledge
	Specific gravity	Knowledge
	Compatibility	Knowledge
Land disposal restrictions	Chlorinated solvents	Knowledge
	PCBs	Knowledge
	pH	Knowledge
	TC	Knowledge
	Cyanides, sulfides	Knowledge
	Flash point	Knowledge
	Underlying Hazardous Constituents	Knowledge
Regulatory standards	PCBs	Knowledge
	Radiation-alpha, beta, gamma, neutrons, isotopes ²	Knowledge, analysis
RCRA waste code designation	Source of waste	Knowledge
	TC	Knowledge
	pH	Knowledge
	Reactivity	Knowledge
	Flash point	Knowledge

¹ Parameters noted as typically determined by analysis may require only an initial analysis and may be determined by process knowledge thereafter.

² Isotopic information corresponds to uniform control number (UCN) 2109.

**Table 1-3. Waste analysis parameters and rationale
CH-TRU and Mixed LLW (high-activity and low-activity)**

Rationale for testing	Required test parameter	Typically determined by¹
Handling, safety, and compatibility	Radiation-alpha, beta, gamma, neutrons, isotopes ²	Knowledge, analysis
	Flash point	Knowledge, analysis
	Reactivity	Knowledge
	TC	Knowledge, analysis
	Specific gravity	Knowledge, analysis
	Compatibility	Knowledge
Land disposal restrictions	Chlorinated solvents	Knowledge, analysis
	PCBs	Knowledge, analysis
	pH	Knowledge, analysis
	TC	Knowledge, analysis
	Cyanides, sulfides	Knowledge, analysis
	Flash point	Knowledge, analysis
	Underlying Hazardous Constituents	Knowledge, analysis
Regulatory standards	PCBs	Knowledge, analysis
	Radiation-alpha, beta, gamma, neutron, isotopes ²	Knowledge, analysis
RCRA waste code designation	Source of waste	Knowledge
	TC	Knowledge, analysis
	pH	Knowledge, analysis
	Reactivity	Knowledge
	Flash point	Knowledge, analysis

¹ Parameters noted as typically determined by analysis may require only an initial analysis and may be determined by process knowledge thereafter; with retesting on a periodic basis.

² Isotopic information corresponds to UCN-2109.

units. Table 1-4 identifies the forms necessary for radioactive waste storage or disposal. WAC are in place to prohibit the inclusion of RCRA materials other than those listed in Table 1-1 in newly generated waste. The WAC are summarized in Table 1-5.

Special handling will be prescribed for hazardous wastes co-contaminated with transuranics. Generators will be required to label their mixed waste properly. For the containers (buckets, drums, etc.) holding mixed wastes, the RCRA components will be identified and quantified. Since early 1990, RCRA wastes were required to be listed on the appropriate waste storage or disposal forms. Specially marked plastic covers will be used for closing plastic buckets containing RCRA materials to facilitate identification during repackaging.

CH-TRU Waste. Generator identification of RCRA wastes will be based on applied knowledge of the hazardous characteristics of the waste and/or knowledge of the materials and processes used or testing. Adequate documentation of the process knowledge will be maintained on-site at ORNL in the operating records for the CH-TRU waste storage units.

Table 1-4 identifies the forms necessary for radioactive waste storage or disposal. WAC are in place that will prohibit the inclusion of RCRA materials other than those identified in Table 1-1 in newly generated waste. The WAC are summarized in Table 1-6.

Table 1-4. Examples of forms¹ for radioactive waste storage or disposal

	TRU/High-Activity LLW	Low-activity LLW
UCN-2109 and attachments, Request for disposal	X	X
UCN-2785, Radiation hazard tag	X	X
UCN-5917, Nuclear Safety Review ²	X	
UCN-2681, Nuclear materials transfer	>1g ³	
Hazardous Waste Manifest ⁴	X	X

¹ Equivalent forms may be used. Appendix 1-5 contains copies of the aforementioned forms for TRU or LLW storage.

² This form is required for all fissionable material.

³ 1 gram applies to U-235, see *ORNL Nuclear Material Control and Accountability Manual for Accounting Procedures*, ORNL/CF-92.

⁴ For mixed wastes generated at off-site facilities.

**Table 1-5. RH-TRU waste storage units acceptance
criteria for newly generated RH-TRU waste**

CRITERIA

Form UCN-2109¹, "Waste Item Description," and proper attachment(s) have been completed.

If accountable nuclear materials are to be disposed of, Form UCN-2681¹, "Nuclear Materials Intra-Laboratory Transfer," and Form UCN-6073¹, "Request for Authorization to Dispose of Nuclear Materials," must be completed. (Not applicable for wastes shipped to ORNL from off-site facilities.)

If the fissile quantity exceeds the values in the Nuclear Safety Review document, Form UCN-5917¹, "Request for Nuclear Safety Review," must be completed.

Form UCN-2785¹, "Radiation Tag," must be attached to the cask for transport. The radiation tag identifies the container surface dose rate and confirms that the exterior is free of transferable contamination.

Radiation levels over the limit require a Radiation Worker Permit (RWP) prior to transfer.

A unique container number which identifies and tracks the container through the waste management process is required to be painted on the cask.

Storage of RCRA hazardous wastes in RH-TRU waste storage units is limited to those RCRA waste codes listed in Table 1-1.

No water reactive waste may be stored.

Storage of pyrophoric materials is prohibited.

Storage of explosive materials or compressed gases is prohibited.

Storage of dioxins is prohibited.

Storage of waste containing free liquids greater than 1% of the waste volume is prohibited.

K-listed wastes are prohibited.

¹ Equivalent forms may be used.

Table 1-6. CH-TRU waste storage units acceptance criteria for newly generated CH-TRU waste

CRITERIA

Form UCN-2109¹, "Waste Item Description" and proper attachments have been completed.

If RCRA hazardous materials/wastes are present, a hazardous waste label must be affixed to the container(s).

For shipments of wastes from off-site facilities, a hazardous waste manifest and/or a completed "Check Sheet for Off-Site Shipments" is required, depending on whether the waste is mixed waste.

If accountable nuclear materials are to be disposed of, Form UCN-2681¹, "Nuclear Materials Intra-Laboratory Transfer," and Form UCN-6073¹, "Request for Authorization to Dispose of Nuclear Materials," must be completed (not applicable for wastes shipped to ORNL from off-site facilities).

If the fissile material in a 55-gal drum exceeds 200 g of equivalent U-235, Form UCN-5917¹, "Request for Nuclear Safety Review," must be completed.

Form UCN-2785¹, "Radiation Tag," must be attached to the container for transport. The radiation tag identifies the container surface dose rate and confirms that the exterior is free of transferable contamination.

A unique container number which identifies and tracks the container through the waste management process is required to be labeled on the container. (Shipments of waste from off-site facilities shall have a unique identifier such as a bar code sticker with a unit number on the container.)

Storage of RCRA hazardous wastes in CH-TRU waste storage units is limited to those RCRA waste codes listed in Table 1-1.

No water reactive waste may be stored.

Storage of pyrophoric materials is prohibited.

Storage of explosive materials or compressed gases is prohibited.

Storage of dioxins is prohibited.

K-listed wastes are prohibited.

¹ Equivalent forms may be used.

High-activity Mixed LLW. Generator identification of RCRA wastes will be based on applied knowledge of the hazardous characteristics of the waste, knowledge of the materials or processes, and/or periodic testing. Adequate documentation of the process knowledge will be maintained in the operating records for the TRU waste storage units. Table 1-4 identifies the forms necessary for radioactive waste storage or disposal. WAC are in place to prohibit the inclusion of RCRA materials other than those identified in Table 1-1 in newly generated waste. The WAC are summarized in Table 1-7.

Table 1-7. TRU and Class III/IV waste storage units acceptance criteria for newly generated high-activity LLW

CRITERIA

Form UCN-2109¹, "Waste Item Description" and proper attachments have been completed.

If RCRA hazardous materials/wastes are present, a hazardous waste label must be affixed to the container(s).

For shipments of wastes from off-site facilities, a hazardous waste manifest and/or a completed "Check Sheet for Off-Site Shipments" is required, depending on whether the waste is mixed waste.

If accountable nuclear materials are to be disposed of, Form UCN-2681¹, "Nuclear Materials Intra-Laboratory Transfer," and Form UCN-6073¹, "Request for Authorization to Dispose of Nuclear Materials," must be completed (not applicable for wastes shipped to ORNL from off-site facilities).

If the fissile material in a 55-gal drum exceeds 200 g of equivalent U-235, Form UCN-5917¹, "Request for Nuclear Safety Review," must be completed.

Form UCN-2785¹, "Radiation Tag," must be attached to the container for transport. The radiation tag identifies the container surface dose rate and confirms that the exterior is free of transferable contamination.

A unique container number which identifies and tracks the container through the waste management process is required to be labeled on the container. (Shipments of waste from off-site facilities shall have a unique identifier such as a bar code sticker with a unit number on the container.)

Storage of RCRA hazardous wastes in TRU waste storage units is limited to those RCRA waste codes listed in Table 1-1.

Storage of pyrophoric materials is prohibited.

Storage of explosive materials or compressed gases is prohibited.

Storage of dioxins is prohibited.

K-listed wastes are prohibited.

¹ Equivalent forms may be used.

Low-activity Mixed LLW. Generator identification of RCRA wastes will be based on applied knowledge of the hazardous characteristics of the waste, knowledge of the materials or processes, and/or analytical testing. Adequate documentation of the process knowledge will be maintained on-site at ORNL in the operating records for the TRU storage units. Table 1-4 identifies the forms necessary for low-activity LLW disposal. WAC are in place to prohibit the inclusion of RCRA materials other than those identified in Table 1-1 in newly generated waste. The WAC are summarized in Table 1-8.

The WPF will not be used for long term storage of mixed wastes. Waste will be transferred to the WPF from the other units authorized in this permit for temporary storage while conducting activities to prepare waste for off-site disposal including characterization by non destructive examination (NDE), non destructive assay (NDA), and visual examination, as required.

1-2b Test Methods

RH-TRU Waste. Due to the radiological hazards involved with RH-TRU waste handling required for analysis, generator documentation requirements that provide waste characterization based on the generator's knowledge of the process have been implemented. Therefore, testing is not performed.

CH-TRU Waste and High-Activity Mixed LLW. Due to radiological hazards involved with CH-TRU and high-activity LLW handling required for analysis, generator documentation requirements that provide waste characterization based on the generator's knowledge of the process have been implemented. Therefore, very limited testing is performed. However when testing is performed, waste characterization samples will be prepared and analyzed according to the appropriate protocol described in the EPA document, *Test Methods for Evaluating Solid Waste*,

**Table 1-8. TRU waste storage units acceptance
criteria for newly generated low-activity LLW**

CRITERIA

Form UCN-2109¹, "Waste Item Description" and proper attachments have been completed.

If RCRA hazardous materials/wastes are present, a hazardous waste label must be affixed to the container(s).

For shipments of wastes from off-site facilities, a hazardous waste manifest and/or a completed "Check Sheet for Off-Site Shipments" is required, depending on whether the waste is mixed waste.

Form UCN-2785¹, "Radiation Tag," must be attached to the container for transport. The radiation tag identifies the container surface dose rate and confirms that the exterior is free of transferable contamination.

A unique container number which identifies and tracks the container through the waste management process is required to be labeled on the container. (Shipments of waste from off-site facilities shall have a unique identifier such as a bar code sticker with a unit number on the container.)

Storage of RCRA hazardous wastes in TRU waste storage units is limited to those RCRA waste codes listed in Table 1-1.

K-listed wastes are prohibited.

¹ Equivalent forms may be used.

SW-846, Third Edition and Updates (SW-846). The sample preparation and analytical protocols are specified in Appendix 1-2, "Test Methods." The Quality Assurance/Quality Control (QA/QC) Program used is presented in Appendix 1-3.

Low-Activity Mixed LLW. As necessary, waste characterization samples will be prepared and analyzed according to the appropriate protocol described in the EPA document SW-846. The sample preparation and analytical protocols are specified in Appendix 1-2. The QA/QC Program used is presented in Appendix 1-3.

Under the requirements of TN Rule 1200-1-11-.06(2)(a)1 (40 CFR Part 264.13), adequate laboratory controls, including appropriate QA procedures, must be maintained. Each SW-846 method specified in this section includes specific QA procedures. These techniques include the preparation and analysis of duplicate, blank, and spiked samples at specific intervals in the analytical operation.

1-2c Sampling Methods

RH-TRU Waste. Due to the radiological hazards involved with waste handling required for analysis, documentation requirements have been implemented for newly generated wastes that provide waste characterization based on the generator's knowledge of the process. Therefore, sampling is not performed.

CH-TRU Waste and High-Activity Mixed LLW. Due to the radiological hazards involved with waste handling required for analysis, documentation requirements have been implemented for newly generated wastes to provide waste characterization based on the generator's knowledge of the process. Therefore, very limited sampling is performed. Sampling is performed only when the generator cannot document the contents of the waste based upon his/her process knowledge. Sampling follows steps outlined under low-activity mixed LLW below.

Low-Activity Mixed LLW

Sampling

The contents of each unique waste stream will be characterized by either process knowledge or analysis before transfer to any of the waste storage units covered by this document.

Sampling is performed when the generator cannot document the contents of the waste based upon his/her process knowledge.

Wastes are expected to be encountered in one of the following forms:

<u>Category</u>	<u>Form/Description</u>
I	liquid (homogeneous/heterogeneous)
II	sludges (homogeneous/heterogeneous)
III	soil (homogeneous/heterogeneous)
IV	solids - paper, metals, gloves, etc. (heterogeneous)

Containers of wastes for a given waste stream will be grouped into the above categories. For categories I, II, and III, the number of containers selected from each group will be based on the following guidelines:

1 container	2 samples from the container
2 containers	1 sample from each container
3 containers	1 sample from each of two containers selected randomly
4 - 20 containers	1 sample from each of three containers selected randomly
20 - 39 containers	1 sample from each of four containers selected randomly
40 - 59 containers	1 sample from each of five containers selected randomly
60 - 79 containers	1 sample from each of six containers selected randomly
> 80 containers	1 sample from each of eight (or more) containers selected randomly following EPA-approved methods.

For category IV wastes, the following guidelines will be followed:

- (A) If the waste is determined not to be radioactive, based on radiation protection (RP) surveys, the contents of each container will be emptied onto a protective sheet and segregated into like wastes based on physical properties. Two samples of each waste type will be collected.
- (B) If the waste is determined to be radioactive based on RP surveys, four samples will be taken from each container.

Samples will be collected using approved EPA methods described in SW 846. Procedures are summarized as follows:

Category I Samples will represent a vertical composite of the container. Samples will be collected using a composite liquid waste sampler (COLIWASA) (glass). The

Sampling is performed when the generator cannot document the contents of the waste based upon his/her process knowledge.

Wastes are expected to be encountered in one of the following forms:

<u>Category</u>	<u>Form/Description</u>
I	liquid (homogeneous/heterogeneous)
II	sludges (homogeneous/heterogeneous)
III	soil (homogeneous/heterogeneous)
IV	solids - paper, metals, gloves, etc. (heterogeneous)

Containers of wastes for a given waste stream will be grouped into the above categories. For categories I, II, and III, the number of containers selected from each group will be based on the following guidelines:

1 container	2 samples from the container
2 containers	1 sample from each container
3 containers	1 sample from each of two containers selected randomly
4 - 20 containers	1 sample from each of three containers selected randomly
20 - 39 containers	1 sample from each of four containers selected randomly
40 - 59 containers	1 sample from each of five containers selected randomly
60 - 79 containers	1 sample from each of six containers selected randomly
> 80 containers	1 sample from each of eight (or more) containers selected randomly following EPA-approved methods.

For category IV wastes, the following guidelines will be followed:

- (A) If the waste is determined not to be radioactive, based on radiation protection (RP) surveys, the contents of each container will be emptied onto a protective sheet and segregated into like wastes based on physical properties. Two samples of each waste type will be collected.
- (B) If the waste is determined to be radioactive based on RP surveys, four samples will be taken from each container.

Samples will be collected using approved EPA methods described in SW 846. Procedures are summarized as follows:

Category I Samples will represent a vertical composite of the container. Samples will be collected using a composite liquid waste sampler (COLIWASA) (glass). The

sample will be extruded from the COLIWASA into a container large enough to hold enough sample for all analytical parameters. The sample will be gently swirled and transferred into appropriate sample containers.

Category II Samples will represent a vertical composite of the container. Samples will be collected using either a COLIWASA (glass) or a Trier-type (stainless steel) sampler. The consistency of the sludge will determine the type of sampler to be used. The sample will be placed in a container and gently mixed using a stainless steel implement. The sample will then be transferred to appropriate sample containers.

Category III Samples will represent a vertical composite of the container. Samples will be collected using a Trier-type (stainless steel) sampler. The sample will be gently mixed using a stainless steel implement and transferred to appropriate sample containers.

Category IVA Sample waste types will be segregated manually. After segregation, the sample will be placed in appropriate sample containers. NOTE: In the case of metals, the individual parts which make up the sample must be no greater than 9.5 mm for acceptance at the analytical laboratory.

Category IVB Samples from each container will be collected using a Trier-type sampler or a stainless steel implement. There is no way to ensure that this sample will be truly representative of the total waste within the container. Due to the radioactive nature of the waste and the DOE ALARA policy, it is not feasible for the sampling team to handle these wastes to segregate the waste; therefore, more samples are taken to better account for the potential variability of the sample.

The sampling team will describe each of the waste container contents sampled on an appropriate sampling log sheet. The description will include observations as to the physical nature of the contents, photoionization readings indicating potential organic contents, and RP instrument readings for potential radioactivity. Sampling and field QC procedures will follow methods described in Appendix 1-3 and SW-846. All sample containers will be precleaned (prepared or purchased) and maintained closed until the time of sampling. The selection of preservatives and holding times will be based on method requirements as identified in SW-846.

Duplicate samples are normally collected for analyses from each waste stream or container, providing a "backup sample" if initial results are questionable. If both analytical results for a

waste stream or a container are questionable or inconclusive, additional samples will be obtained and submitted for confirmatory analyses.

Sample Handling

Once the sample is transferred to the pre-labeled sample container, the lid will be closed tightly. Organic samples will be placed in a cooler at a temperature of about 4° C. At a minimum, the label will identify the time of sampling, sampler, preservatives, type of sample, analysis to be performed, date, and a unique sample identification number. The sample containers will be placed in a sample ice chest with ice or equivalent. An analytical request form and a Chain-of-Custody Form will accompany the sample to the laboratory. The analytical request form will also identify the sample number from the label affixed to the sample container(s).

Reporting

All analytical results, generator information, and sample chain-of-custody documentation will accompany a request for transfer and will be maintained in the waste storage unit operating record.

1-2d Frequency of Analysis

RH-TRU Waste. Due to radiological hazards involved with waste handling, documentation requirements have been implemented for newly generated waste to provide waste characterization based on the generator's knowledge of the process. This documentation will accompany each shipment.

CH-TRU Waste and High-Activity Mixed LLW. The contents of each unique batch of waste or waste stream will be characterized by knowledge of the process before transfer to a storage unit. Due to radiological hazards involved with waste handling, analysis of the waste will be limited. However, each shipment of newly generated waste will be accompanied by documentation which provides the waste characterization based on the generator's knowledge of the process and/or analysis.

Low-Activity Mixed LLW. The contents of each unique batch of waste or waste stream will be characterized by either analysis or by knowledge of the process before transfer to a storage unit. At a minimum, waste characterization necessary to ensure safe handling, regulatory

compliance, compatibility, and waste acceptance will be required before a waste is transferred to one of these units. Characterization required for land disposal must be complete for the waste streams prior to off-site storage and/or disposal. A waste characterization will remain valid until the generating process changes and will be verified approximately annually.

1-2e Additional Requirements for Waste Generated Off-Site

Wastes from off-site generators will be checked in by ORNL's Receiving Department in the 7000 Area upon arrival at ORNL. The waste shipment and documentation will be reviewed for completeness and accuracy. The forms that will accompany each shipment are: "Waste Item Description" and required attachment(s) (Form UCN-2109¹) and a Hazardous Waste Manifest (if required).

In addition, WO staff members may be present during the packaging of off-site wastes prior to shipment to ORNL. WO staff will generally be consulted for suitable packaging prior to shipment of wastes. Characterization and waste class information will be supplied by the off-site generator with every shipment. Additional analyses will not be conducted by WO in order to make radiation exposures ALARA to samplers and analytical staff.

During unloading of the drums, a "Check Sheet for Off-site Drum Receipt" form¹ will be completed. Any nonconformances will be noted on the check sheet. WO staff will contact the generator to resolve and correct any such nonconformances with the WAC or with RCRA manifest requirements. Procedures for resolving manifest discrepancies are outlined below.

After WO staff have completed the "Check Sheet for Off-site Drum Receipt," RP personnel will survey each drum and, if radioactive, will attach a "Radiation Hazard Tag" (Form UCN-2785¹). Each drum will be visually checked for damage, for appropriate packaging, and to verify that a tamper-indicating device (TID) has been attached and is intact prior to being placed in long-term storage. Table 1-6 identifies the WAC for the CH-TRU wastes. Appendix 1-5 contains copies of the aforementioned forms.

Manifest discrepancies will be considered to be differences between the quantity or type of hazardous waste designated on the manifest or shipping paper and the quantity or type of hazardous waste a storage unit actually receives. Significant discrepancies in quantity will be

¹ Equivalent forms may be used.

(1) for bulk waste, variations greater than 10% in weight and (2) for batch waste, any variation in piece count, such as a discrepancy of one drum in a truckload. Significant discrepancies in waste type will be obvious differences which can be discovered by inspection or waste analysis, such as waste solvent substituted for waste acid or toxic constituents not reported on the manifest or shipping paper.

WO staff will attempt to reconcile any manifest discrepancies with the generator or transporter. If not resolved in 15 days after receipt of the waste, a letter will be submitted to the State Administrator describing the discrepancy and attempts to reconcile it and a copy of the manifest or shipping paper.

If a permitted waste storage unit accepts for treatment, storage, or disposal any hazardous waste from an off-site generator without an accompanying manifest, or without an accompanying shipping paper as described in 40 CFR 263.20(e)(2) or TN Rule 1200-1-11-.04(3)(a)1 and if the waste is not excluded from the manifest requirements by 40 CFR 261.5 or TN Rule 1200-1-11-.02(1)(a)1, a single copy of an unmanifested waste report will be submitted to the State Administrator within 15 days after receiving the waste.

1-2f Additional Requirements for Units Handling Ignitable, Reactive, or Incompatible Waste

Waste characteristics will be reviewed for compatibility using the hazardous waste compatibility chart developed by the American Society for Testing Materials (ASTM) Committee D-34, the list in 40 CFR Part 264 Appendix V, *Examples of Potentially Incompatible Waste*, TN Rule 1200-1-11-.06(33)(a)1, or other appropriate chemical references in order to ensure proper handling.

Mixing of incompatible wastes will also be prevented by requirements that the generators provide information, based on process knowledge and/or testing, describing the waste contents and characteristics. A compatibility review is an element of the WAC. Waste Management (WM) personnel will determine compatibility using waste handling history and other available literature data.

Based on waste handling history and a review of the incompatible groupings, the RH-TRU waste will not be reactive, ignitable, or incompatible.

CH-TRU and/or mixed LLW could potentially be ignitable and/or incompatible. The design and operation of each of these units minimizes the probability that incompatible wastes will be mixed. Incompatible wastes will be separated by portable dikes or other means of segregation.

1-2g WPF Waste Characterization Process

Waste will be transferred to the WPF from other units authorized in this permit, for temporary storage while conducting activities to prepare waste for off-site disposal including characterization by non-destructive examination (NDE), non-destructive assay (NDA), and visual examination (VE), as required. Waste confirmed to be RH-TRU and CH-TRU waste will ultimately be disposed at the Waste Isolation Pilot Plant (WIPP) in New Mexico. Waste identified as LLW, including MLLW, will ultimately be disposed at either the Nevada Test Site or an approved commercial TSDF.

Waste that is disposed at the WIPP is exempt from having to meet RCRA Land Disposal Restriction criteria (note: Pub. L. 102-579; January 3, 1992). All waste management activities performed on RH-TRU and CH-TRU waste at the WPF are intended to ensure the waste meets the waste acceptance criteria for the WIPP. The WIPP acceptance criteria requires that the generator identify all processes and materials used in each facility where TRU waste was generated and then conservatively apply all RCRA codes associated with those processes to all waste originating from that facility. The WIPP waste-acceptance group verifies whether the waste meets their criteria for "acceptable knowledge" (AK), for each candidate waste stream, by auditing the AK documentation prior to waste shipment. RCRA codes determined by this WIPP waste acceptance process will be applied to RH-TRU and CH-TRU waste containers at the WPF and subsequently managed accordingly.

The additional waste characterization, as well as the sorting and segregation processes performed at the WPF is expected to identify LLW, including some MLLW. RCRA codes determined by these LLW processing steps will be applied to the MLLW containers at the WPF and managed accordingly.

NDE and/or VE will be used to determine the presence of WPF non-compliant items (currently items such as liquids, gas cylinders, and aerosol cans.) Non-compliant items may be returned to one of the other ORNL permitted storages units for temporary storage until the WPF can safely prepare them for offsite disposal.

1-3 ADDITIONAL WASTE ANALYSIS REQUIREMENTS PERTAINING TO LAND DISPOSAL RESTRICTIONS (LDR)

1-3a Waste Characteristics

Specific data must be submitted by the generator to the owner/operator of the storage, treatment, or disposal unit to document whether the waste is subject to the land disposal

restrictions under 40 CFR Part 268 (TN Rule 1200-1-11-.10). This data will be obtained by analysis of the waste and/or by knowledge of the process that generated the waste.

Land disposal restriction status, including UHCs where required, will be based on analytical data and/or process knowledge provided by the generator. The wastes stored in these units will meet the definition of a wastewater or a non-wastewater as defined in 40 CFR 268.2 (TN Rule 1200-1-11-.10). If analytical data or process knowledge is insufficient, these wastes will be assumed to be land disposal restricted wastes.

A summary of current treatment codes and effective dates is located in 40 CFR 268. In accordance with the SOPs, WM staff refer to the current version of 40 CFR 268 and/or TN Rule 1200-1-11-.10 for final determination of appropriate treatment codes and effective dates for the land disposal restrictions.

APPENDIX 1-1

SAMPLE OF ANALYTICAL RESULTS FOR LLW

RECEIVED JAN 21 1991

AUG 15

No. 13027

REQUEST FOR DISPOSAL OF HAZARDOUS WASTE MATERIAL

				Page 1 of	
Generator			Bldg.	Room No.	
Plant	Employee No.	Phone No.	Charge/Work Order No.		
Location of Material			Room or Area		

ITEM NO.	DESCRIPTION OF MATERIAL*	QUANTITY	RADIOACTIVE/ NONRADIOACTIVE ***	HAZARD INFORMATION	EPA/WASTE NO./CONTAINER NO.**

* IF THE WASTE IS A CHEMICAL MIXTURE OR AN ITEM AS CONTAMINATED CLOTHING, LIST EACH CHEMICAL AND APPROXIMATE AMOUNTS OF EACH. ALL FORMS NOT PROPERLY FILLED OUT WILL BE RETURNED.

TO BE COMPLETED BY THE HAZARDOUS WASTE OPERATIONS GROUP

STORAGE LOCATION		TOTAL WEIGHT/VOLUME
DATE TO STORAGE	RECYCLE/DISPOSAL DATE	RECYCLE/DISPOSAL SITE

WHITE HWOG
 CANARY CONTAINER
 BLUE WASTE GENERATOR
 ** INFORMATION TO BE COMPLETED BY HWOG
 ***HP TAG REQUIRED TO PICKUP

UCN-13698

Oak Ridge National Laboratory

Analytical Chemistry Division
Results of Analyses

Request No.: LLL12502 Project
 Customer Name: L WESLEY *3/8/91 Series
 Charge: 33300412 Frequency
 Dept No: 3325
 Sample Matrix: OIL/ACID Lab Sample
 Customer Sample No.: 13027-1-1-1C Sample From
 Date Sampled: 8-FEB-1991 Report For
 Date Received: 8-FEB-1991 Matl. Des
 Comments:

Analysis Procedure No.	Analysis	Result	Error	Units
EPA-900.0 EPA-900.0	G-ALPHA	7	12	BQ/KG
EPA-901.1	CS-137	-.02	.21	BQ/TOT

Oak Ridge National Laboratory
Analytical Chemistry Division
Results of Analyses

Request No.: LLL12502 Project
 Customer Name: L WESLEY *3/8/91 Series
 Charge: 33300412 Frequency
 Dept No: 3325
 Sample Matrix: OIL/ACID Lab Sample
 Customer Sample No.: 13027-1-1-2C Sample From
 Date Sampled: 8-FEB-1991 Report For
 Date Received: 8-FEB-1991 Matl. Des
 Comments:

Analysis Procedure No.	Analysis	Result	Error	Units
EPA-900.0 EPA-900.0	G-ALPHA	-3.1	1.2	BQ/KG
EPA-901.1	CO-60	.73	.38	BQ/TOT
EPA-901.1	CS-137	-.01	.63	BQ/TOT

Oak Ridge National Laboratory
Analytical Chemistry Division

Oak Ridge National Laboratory
Analytical Chemistry Division

Results of Analyses

Request No.: LLL12502 Project
 Customer Name: L WESLEY *3/8/91 Series
 Charge: 33300412 Frequency
 Dept No: 3325
 Sample Matrix: OIL/ACID Lab Sample
 Customer Sample No.: 13027-1-2-1C Sample From
 Date Sampled: 8-FEB-1991 Report For
 Date Received: 8-FEB-1991 Matl. Des
 Comments:

Analysis Procedure No.	Analysis	Result	Error	Units
-	C-14	-1.5E2	5.9E2	BQ/L
EPA-900.0	G-ALPHA	-1.0	0.4	BQ/L
EPA-900.0	G-BETA			
EPA-901.1	CS-137	3.8	7.7	BQ/L
EPA-906.0	TRITIUM	0.2E2	5.4E2	BQ/L

Oak Ridge National Laboratory
 Analytical Chemistry Division
 Results of Analyses

Request No.: LLL12502 Project
 Customer Name: L WESLEY *3/8/91 Series
 Charge: 33300412 Frequency
 Dept No: 3325
 Sample Matrix: OIL/ACID Lab Sample
 Customer Sample No.: 13027-1-2-2C Sample From
 Date Sampled: 8-FEB-1991 Report For
 Date Received: 8-FEB-1991 Matl. Des
 Comments:

Analysis Procedure No.	Analysis	Result	Error	Units
-	C-14	-3.3E2	5.7E2	BQ/L
EPA-900.0	G-ALPHA	-1.4	0.5	BQ/L
EPA-900.0	G-BETA	14	10	BQ/L
EPA-901.1	CS-137	3.4	2.0	BQ/L
EPA-906.0	TRITIUM	5.1E2	6.5E2	BQ/L

Oak Ridge National Laboratory
 Analytical Chemistry Division
 Results of Analyses

Request No.: LLL12502 Project
 Customer Name: L WESLEY *3/8/91 Series
 Charge: 33300412 Frequency
 Dept No: 3325
 Sample Matrix: OIL/ACID Lab Sample
 Customer Sample No.: 13027-1-3-1C Sample From
 Date Sampled: 8-FEB-1991 Report For
 Date Received: 8-FEB-1991 Matl. Des
 Comments:

Analysis Procedure No.	Analysis	Result	Error	Units
-	C-14	2.8E3	0.1E3	BQ/L
EPA-900.0	G-ALPHA	-2.0	2.4	BQ/L
EPA-900.0	G-BETA	4	10	BQ/L
EPA-901.1	CS-137	-0.8	7.7	BQ/L
EPA-906.0	TRITIUM	1.8E3	0.1E3	BQ/L

Oak Ridge National Laboratory
 Analytical Chemistry Division
 Results of Analyses

Request No.: LLL12502 Project
 Customer Name: L WESLEY *3/8/91 Series
 Charge: 33300412 Frequency
 Dept No: 3325
 Sample Matrix: OIL/ACID Lab Sample
 Customer Sample No.: 13027-1-3-2C Sample From
 Date Sampled: 8-FEB-1991 Report For
 Date Received: 8-FEB-1991 Matl. Des
 Comments:

Analysis Procedure No.	Analysis	Result	Error	Units
-	C-14	4.2E3	0.1E3	BQ/L
EPA-900.0	G-ALPHA	-0.9	8.7	BQ/L
EPA-900.0	G-BETA	8.6	8.7	BQ/L
EPA-901.1	CS-137	1.3	4.9	BQ/L
EPA-906.0	TRITIUM	#13027 2.0E3	0.1E3	BQ/L

Oak Ridge National Laboratory
 Analytical Chemistry Division
 Results of Analyses

Request No.:	LLL12502	Project
Customer Name:	L WESLEY *3/8/91	Series
Charge:	33300412	Frequency
Dept No:	3325	
Sample Matrix:	OIL/ACID	Lab Sample
Customer Sample No.:	13027-1-2-1B	Sample From
Date Sampled:	8-FEB-1991	Report For
Date Received:	8-FEB-1991	Matl. Des
Comments:		

Analysis Procedure No.	Analysis	Result	Error	Units
EPA 150.1	PH	9.79		
EPA-200.7	AG	-----		MG/L
EPA-200.7	AL	-----		MG/L

TYPE <UP ARROW> TO SEE MORE DATA, <RETURN> TO EXIT
 123 [1-80]

Oak Ridge National Laboratory
 Analytical Chemistry Division
 Results of Analyses

Request No.:	LLL12502	Project
Customer Name:	L WESLEY *3/8/91	Series
Charge:	33300412	Frequency
Dept No:	3325	
Sample Matrix:	OIL/ACID	Lab Sample
Customer Sample No.:	13027-1-2-2B	Sample From
Date Sampled:	8-FEB-1991	Report For
Date Received:	8-FEB-1991	Matl. Des
Comments:		

Analysis Procedure No.	Analysis	Result	Error	Units
EPA 150.1	PH	9.79		
EPA-200.7	AG	-----		MG/L
EPA-200.7	AL	-----		MG/L

TYPE <UP ARROW> TO SEE MORE DATA, <RETURN> TO EXIT
 123 [1-80]

Oak Ridge National Laboratory
 Analytical Chemistry Division
 Results of Analyses

Request No.:	QAL94084	Project
Customer Name:	WESLEY	Series
Charge:	33300412	Frequency
Dept No:	3325	
Sample Matrix:	OIL/ACID	Lab Sample
Customer Sample No.:	13027-1-2-2B	Sample From
Date Sampled:	8-FEB-1991	Report For
Date Received:	8-FEB-1991	Matl. Des
Comments:	COPY TO RW KENNEMORE BLDG 7910	

Analysis Procedure No.	Analysis	Result	Error	Units
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HOLD

8240	1,1,1-trichloroethane	U	5.00	MG/L
8240	1,1,2-tetrachloroethane	U	5.00	MG/L
8240	1,1,2-trichloroethane	U	5.00	MG/L
8240	1,1-dichloroethane	U	5.00	MG/L
8240	1,1-dichloroethene	U	5.00	MG/L
8240	1,2-dichloroethane	U	5.00	MG/L
8240	1,2-dichloroethene (total)	U	5.00	MG/L
8240	1,2-dichloropropane	U	5.00	MG/L
8240	2-butanone	U	10.	MG/L
8240	2-hexanone	U	10.	MG/L
8240	4-methyl-2-pentanone	U	10.	MG/L
8240	acetone	U	10.	MG/L
8240	benzene	U	5.00	MG/L
8240	bromodichloromethane	U	5.00	MG/L
8240	bromoform	U	5.00	MG/L
8240	bromomethane	U	10.	MG/L
8240	carbon disulfide	U	5.00	MG/L
8240	carbon tetrachloride	U	5.00	MG/L
8240	chlorobenzene	U	5.00	MG/L
8240	chloroethane	U	10.	MG/L
8240	chloroform	U	5.00	MG/L
8240	chloromethane	U	10.	MG/L
8240	cis-1,3-dichloropropene	U	5.00	MG/L
8240	dibromochloromethane	U	5.00	MG/L
8240	ethylbenzene	U	5.00	MG/L
8240	methylene chloride	U	5.00	MG/L
8240	styrene	U	5.00	MG/L
8240	tetrachloroethene	U	5.00	MG/L
8240	toluene	U	5.00	MG/L
8240	trans-1,3-dichloropropene	U	5.00	MG/L
8240	trichloroethene	U	5.00	MG/L
8240	vinyl acetate	U	10.	MG/L
8240	vinyl chloride	U	10.	MG/L
8240	xylene (total)	U	5.00	MG/L

Oak Ridge National Laboratory
 Analytical Chemistry Division

Results of Analyses

Request No.:	QAL94084	Project
Customer Name:	WESLEY	Series
Charge:	33300412	Frequency
Dept No:	3325	
Sample Matrix:	OIL/ACID	Lab Sample
Customer Sample No.:	13027-1-3-2ABOT	Sampled From
Date Sampled:	8-FEB-1991	Report For
Date Received:	8-FEB-1991	Matl. Des
Comments:	COPY TO RW KENNEMORE BLDG 7910	

Analysis Procedure No.	Analysis	Result	Error	Units

	HOLD			
8240	1,1,1-trichloroethane	U	5.00	MG/L
8240	1,1,2,2-tetrachloroethane	U	5.00	MG/L
8240	1,1,2-trichloroethane	U	5.00	MG/L
8240	1,1-dichloroethane	U	5.00	MG/L
8240	1,1-dichloroethene	U	5.00	MG/L
8240	1,2-dichloroethane	U	5.00	MG/L
8240	1,2-dichloroethene (total)	U	5.00	MG/L
8240	1,2-dichloropropane	U	5.00	MG/L
8240	2-butanone	U	10.	MG/L
8240	2-hexanone	U	10.	MG/L
8240	4-methyl-2-pentanone	U	10.	MG/L
8240	acetone	U	10.	MG/L
8240	benzene	U	5.00	MG/L
8240	bromodichloromethane	U	5.00	MG/L
8240	bromoform	U	5.00	MG/L
8240	bromomethane	U	10.	MG/L
8240	carbon disulfide	U	5.00	MG/L
8240	carbon tetrachloride	U	5.00	MG/L
8240	chlorobenzene	U	5.00	MG/L
8240	chloroethane	U	10.	MG/L
8240	chloroform	U	5.00	MG/L
8240	chloromethane	U	10.	MG/L
8240	cis-1,3-dichloropropene	U	5.00	MG/L
8240	dibromochloromethane	U	5.00	MG/L
8240	ethylbenzene	U	5.00	MG/L
8240	methylene chloride	U	5.00	MG/L
8240	styrene	U	5.00	MG/L
8240	tetrachloroethene	U	5.00	MG/L
8240	toluene	U	5.00	MG/L
8240	trans-1,3-dichloropropene	U	5.00	MG/L
8240	trichloroethene	U	5.00	MG/L
8240	vinyl acetate	U	10.	MG/L
8240	vinyl chloride	U	10.	MG/L
8240	xylene (total)	U	5.00	MG/L

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

13027-1-3-1ATOP

Name: Oak Ridge National Lab

Contract:

Lab Code:

Case no:

SAS No:

SDG No:

Matrix: (soil/water) SOIL

Lab Sample ID: 910208-053

Sample wt/vol: G

Lab File ID:

Level: (low/med)

Date Received:

Moisture: not dec.

Date Analyzed:

Column: (pack/cap)

Dilution Factor:

CONCENTRATION UNITS:
(UG/L OR UG/KG) MG/L

CAS NO.	COMPOUND		Q
74-87-3-----	chloromethane	10.	U
74-83-9-----	bromomethane	10.	U
75-01-4-----	vinyl chloride	10.	U
75-00-3-----	chloroethane	10.	U
75-09-2-----	methylene chloride	5.00	U
67-64-1-----	acetone	10.	U
75-15-0-----	carbon disulfide	5.00	U
75-35-4-----	1,1-dichloroethene	5.00	U
75-34-3-----	1,1-dichloroethane	5.00	U
540-59-0-----	1,2-dichloroethene (total)	5.00	U
67-66-3-----	chloroform	5.00	U
107-06-2-----	1,2-dichloroethane	5.00	U
78-93-3-----	2-butanone	10.	U
71-55-6-----	1,1,1-trichloroethane	5.00	U
56-23-5-----	carbon tetrachloride	5.00	U
108-05-4-----	vinyl acetate	10.	U
75-27-4-----	bromodichloromethane	5.00	U
78-87-5-----	1,2-dichloropropane	5.00	U
10061-01-5----	cis-1,3-dichloropropene	5.00	U
79-01-6-----	trichloroethene	5.00	U
124-48-1-----	dibromochloromethane	5.00	U
79-00-5-----	1,1,2-trichloroethane	5.00	U
71-43-2-----	benzene	5.00	U
10061-02-06---	trans-1,3-dichloropropene	5.00	U
75-25-2-----	bromoform	5.00	U
108-10-1-----	4-methyl-2-pentanone	10.	U
591-78-6-----	2-hexanone	10.	U
127-18-4-----	tetrachloroethene	5.00	U
79-34-5-----	1,1,2,2-tetrachloroethane	5.00	U
108-88-3-----	toluene	5.00	U
108-90-7-----	chlorobenzene	5.00	U
100-41-4-----	ethylbenzene	5.00	U
100-42-5-----	styrene	5.00	U
1330-20-7-----	xylene (total)	5.00	U

Reviewed by: _____

Date: _____

Semivolatile Organic Analysis Data

EPA SAMPLE NO.

13027-1-3-1ATOP

Name: Oak Ridge National Lab

Contract:

Lab Code: Case no: SAS No: SDG No:
 Matrix: (soil/water) SOIL Lab Sample ID: 910208-053
 Sample wt/vol: G Lab File ID:
 Level: (low/med) Date Received: 8-Feb-1991
 Moisture: not dec. dec. Date Analyzed:
 Extraction: (Sepf/Cont/Sonc) Date Extracted:
 Cleanup: (U/N) pH: Dilution Factor:

CAS NO.	COMPOUND	CONCENTRATION UNITS:	
		(UG/L OR UG/KG) MG/L	Q

Semivolatile Organic Analysis Data

EPA SAMPLE NO.

13027-1-3-1ATOP

Name: Oak Ridge National Lab

Contract:

Lab Code:

Case no:

SAS No:

SDG No:

Matrix: (soil/water) SOIL

Lab Sample ID: 910208-053

Sample wt/vol: G

Lab File ID:

Level: (low/med)

Date Received: 8-Feb-1991

Moisture: not dec.

dec.

Date Analyzed:

Extraction: (Sepf/Cont/Sonc)

Date Extracted:

Cleanup: (U/N)

pH:

Dilution Factor:

CAS NO.	COMPOUND	CONCENTRATION UNITS:		Q
		(UG/L OR UG/KG)	MG/L	

(1) - Cannot be separated from Diphenylamine

Reviewed by: _____ Date: _____

Pesticide Organics Analysis Data Sheet

EPA SAMPLE NO.

13027-1-3-1ATOP

Name: Oak Ridge National Lab

Contract:

Lab Code:

Case no:

SAS No:

SDG No:

Matrix: (soil/water) SOIL

Lab Sample ID: 910208-053

Sample wt/vol: G

Lab File ID:

Level: (low/med)

Date Received: 8-Feb-1991

Moisture: not dec.

dec.

Date Analyzed:

Extraction: (Sepf/Cont/Sonc)

Date Extracted: 1-Apr-1991

Cleanup: (U/N)

pH:

Dilution Factor:

CAS NO.	COMPOUND	CONCENTRATION UNITS:		Q
		(UG/L OR UG/KG)	MG/L	

Reviewed by: _____ Date: _____

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
13027-1-3-2ATOP

Name: Oak Ridge National Lab

Contract:

Lab Code:

Case no:

SAS No:

SDG No:

Matrix: (soil/water) SOIL

Lab Sample ID: 910208-054

Sample wt/vol: G

Lab File ID:

Level: (low/med)

Date Received:

Moisture: not dec.

Date Analyzed:

Column: (pack/cap)

Dilution Factor:

CONCENTRATION UNITS:
(UG/L OR UG/KG) MG/L

CAS NO.	COMPOUND		Q
74-87-3-----	chloromethane	10.	U
74-83-9-----	bromomethane	10.	U
75-01-4-----	vinyl chloride	10.	U
75-00-3-----	chloroethane	10.	U
75-09-2-----	methylene chloride	5.00	U
67-64-1-----	acetone	10.	U
75-15-0-----	carbon disulfide	5.00	U
75-35-4-----	1,1-dichloroethene	5.00	U
75-34-3-----	1,1-dichloroethane	5.00	U
540-59-0-----	1,2-dichloroethene (total)	5.00	U
67-66-3-----	chloroform	5.00	U
107-06-2-----	1,2-dichloroethane	5.00	U
78-93-3-----	2-butanone	10.	U
71-55-6-----	1,1,1-trichloroethane	5.00	U
56-23-5-----	carbon tetrachloride	5.00	U
108-05-4-----	vinyl acetate	10.	U
75-27-4-----	bromodichloromethane	5.00	U
78-87-5-----	1,2-dichloropropane	5.00	U
10061-01-5---	cis-1,3-dichloropropene	5.00	U
79-01-6-----	trichloroethene	5.00	U
124-48-1-----	dibromochloromethane	5.00	U
79-00-5-----	1,1,2-trichloroethane	5.00	U
71-43-2-----	benzene	5.00	U
10061-02-06---	trans-1,3-dichloropropene	5.00	U
75-25-2-----	bromoform	5.00	U
108-10-1-----	4-methyl-2-pentanone	10.	U
591-78-6-----	2-hexanone	10.	U
127-18-4-----	tetrachloroethene	5.00	U
79-34-5-----	1,1,2,2-tetrachloroethane	5.00	U
108-88-3-----	toluene	5.00	U
108-90-7-----	chlorobenzene	5.00	U
100-41-4-----	ethylbenzene	5.00	U
100-42-5-----	styrene	5.00	U
1330-20-7----	xylene (total)	5.00	U

Reviewed by: _____

Date: _____

Semivolatile Organic Analysis Data

EPA SAMPLE NO.

13027-1-3-2ATOP

Name: Oak Ridge National Lab

Contract:

Lab Code:

Case no:

SAS No:

SDG No:

Matrix: (soil/water) SOIL

Lab Sample ID: 910208-054

Sample wt/vol: G

Lab File ID:

Level: (low/med)

Date Received: 8-Feb-1991

Moisture: not dec.

dec.

Date Analyzed:

Extraction: (Sepf/Cont/Sonc)

Date Extracted:

Cleanup: (U/N)

pH:

Dilution Factor:

CAS NO.	COMPOUND	CONCENTRATION UNITS:		Q
		(UG/L OR UG/KG)	MG/L	

Semivolatile Organic Analysis Data

EPA SAMPLE NO.

13027-1-3-2ATOP

Name: Oak Ridge National Lab

Contract:

Lab Code:

Case no:

SAS No:

SDG No:

Matrix: (soil/water) SOIL

Lab Sample ID: 910208-054

Sample wt/vol: G

Lab File ID:

Level: (low/med)

Date Received: 8-Feb-1991

Moisture: not dec.

dec.

Date Analyzed:

Extraction: (Sepf/Cont/Sonc)

Date Extracted:

Cleanup: (U/N)

pH:

Dilution Factor:

CAS NO.	COMPOUND	CONCENTRATION UNITS:		Q
		(UG/L OR UG/KG)	MG/L	

(1) - Cannot be separated from Diphenylamine

Reviewed by: _____ Date: _____

Pesticide Organics Analysis Data Sheet

EPA SAMPLE NO.

13027-1-3-2ATOP

Name: Oak Ridge National Lab

Contract:

Lab Code:

Case no:

SAS No:

SDG No:

Matrix: (soil/water) SOIL

Lab Sample ID: 910208-054

Sample wt/vol: G

Lab File ID:

Level: (low/med)

Date Received: 8-Feb-1991

Moisture: not dec.

dec.

Date Analyzed:

Extraction: (Sept/Cont/Sonc)

Date Extracted: 1-Apr-1991

Cleanup: (U/N)

pH:

Dilution Factor:

CAS NO.	COMPOUND	CONCENTRATION UNITS: (UG/L OR UG/KG) MG/L	Q

Reviewed by: _____ Date: _____

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

13027-1-3-1ABOT

Name: Oak Ridge National Lab

Contract:

Lab Code:

Case no:

SAS No:

SDG No:

Matrix: (soil/water) SOIL

Lab Sample ID: 910208-055

Sample wt/vol: G

Lab File ID:

Level: (low/med)

Date Received:

Moisture: not dec.

Date Analyzed:

Column: (pack/cap)

Dilution Factor:

CONCENTRATION UNITS:
(UG/L OR UG/KG) MG/L

CAS NO.	COMPOUND	(UG/L OR UG/KG) MG/L	Q
74-87-3-----	chloromethane	10.	U
74-83-9-----	bromomethane	10.	U
75-01-4-----	vinyl chloride	10.	U
75-00-3-----	chloroethane	10.	U
75-09-2-----	methylene chloride	5.00	U
67-64-1-----	acetone	10.	U
75-15-0-----	carbon disulfide	5.00	U
75-35-4-----	1,1-dichloroethene	5.00	U
75-34-3-----	1,1-dichloroethane	5.00	U
540-59-0-----	1,2-dichloroethene (total)	5.00	U
67-66-3-----	chloroform	5.00	U
107-06-2-----	1,2-dichloroethane	5.00	U
78-93-3-----	2-butanone	10.	U
71-55-6-----	1,1,1-trichloroethane	5.00	U
56-23-5-----	carbon tetrachloride	5.00	U
108-05-4-----	vinyl acetate	10.	U
75-27-4-----	bromodichloromethane	5.00	U
78-87-5-----	1,2-dichloropropane	5.00	U
10061-01-5----	cis-1,3-dichloropropene	5.00	U
79-01-6-----	trichloroethene	5.00	U
124-48-1-----	dibromochloromethane	5.00	U
79-00-5-----	1,1,2-trichloroethane	5.00	U
71-43-2-----	benzene	5.00	U
10061-02-06---	trans-1,3-dichloropropene	5.00	U
75-25-2-----	bromoform	5.00	U
108-10-1-----	4-methyl-2-pentanone	10.	U
591-78-6-----	2-hexanone	10.	U
127-18-4-----	tetrachloroethene	5.00	U
79-34-5-----	1,1,2,2-tetrachloroethane	5.00	U
108-88-3-----	toluene	5.00	U
108-90-7-----	chlorobenzene	5.00	U
100-41-4-----	ethylbenzene	5.00	U
100-42-5-----	styrene	5.00	U
1330-20-7-----	xylene (total)	5.00	U

Reviewed by: _____

Date: _____

Semivolatile Organic Analysis Data

EPA SAMPLE NO.

13027-1-3-1ABOT

Name: Oak Ridge National Lab

Contract:

Lab Code:

Case no:

SAS No:

SDG No:

Matrix: (soil/water) SOIL

Lab Sample ID: 910208-055

Sample wt/vol: G

Lab File ID:

Level: (low/med)

Date Received: 8-Feb-1991

Moisture: not dec.

dec.

Date Analyzed:

Extraction: (Sepf/Cont/Sonc)

Date Extracted:

Cleanup: (U/N)

pH:

Dilution Factor:

CAS NO.	COMPOUND	CONCENTRATION UNITS: (UG/L OR UG/KG) MG/L	Q

Semivolatile Organic Analysis Data

EPA SAMPLE NO.

13027-1-3-1ABOT

Name: Oak Ridge National Lab

Contract:

Lab Code:

Case no:

SAS No:

SDG No:

Matrix: (soil/water) SOIL

Lab Sample ID: 910208-055

Sample wt/vol: G

Lab File ID:

Level: (low/med)

Date Received: 8-Feb-1991

Moisture: not dec.

dec.

Date Analyzed:

Extraction: (Sepf/Cont/Sonc)

Date Extracted:

Cleanup: (U/N)

pH:

Dilution Factor:

CAS NO.	COMPOUND	CONCENTRATION UNITS:	
		(UG/L OR UG/KG)	MG/L Q

(1) - Cannot be separated from Diphenylamine

Reviewed by: _____ Date: _____

Pesticide Organics Analysis Data Sheet

EPA SAMPLE NO.

13027-1-3-1ABOT

Name: Oak Ridge National Lab

Contract:

Lab Code:

Case no:

SAS No:

SDG No:

Matrix: (soil/water) SOIL

Lab Sample ID: 910208-055

Sample wt/vol: G

Lab File ID:

Level: (low/med)

Date Received: 8-Feb-1991

Moisture: not dec.

dec.

Date Analyzed:

Extraction: (Sepf/Cont/Sonc)

Date Extracted: 1-Apr-1991

Cleanup: (U/N)

pH:

Dilution Factor:

CAS NO.	COMPOUND	CONCENTRATION UNITS: (UG/L OR UG/KG) MG/L	Q

Reviewed by: _____ Date: _____

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

13027-1-3-2ABOT

Name: Oak Ridge National Lab

Contract:

Lab Code:

Case no:

SAS No:

SDG No:

Matrix: (soil/water) SOIL

Lab Sample ID: 910208-056

Sample wt/vol: G

Lab File ID:

Level: (low/med)

Date Received:

Moisture: not dec.

Date Analyzed:

Column: (pack/cap)

Dilution Factor:

CONCENTRATION UNITS:

(UG/L OR UG/KG) MG/L

CAS NO.	COMPOUND	(UG/L OR UG/KG) MG/L	Q
74-87-3-----	chloromethane	10.	U
74-83-9-----	bromomethane	10.	U
75-01-4-----	vinyl chloride	10.	U
75-00-3-----	chloroethane	10.	U
75-09-2-----	methylene chloride	5.00	U
67-64-1-----	acetone	10.	U
75-15-0-----	carbon disulfide	5.00	U
75-35-4-----	1,1-dichloroethene	5.00	U
75-34-3-----	1,1-dichloroethane	5.00	U
540-59-0-----	1,2-dichloroethene (total)	5.00	U
67-66-3-----	chloroform	5.00	U
107-06-2-----	1,2-dichloroethane	5.00	U
78-93-3-----	2-butanone	10.	U
71-55-6-----	1,1,1-trichloroethane	5.00	U
56-23-5-----	carbon tetrachloride	5.00	U
108-05-4-----	vinyl acetate	10.	U
75-27-4-----	bromodichloromethane	5.00	U
78-87-5-----	1,2-dichloropropane	5.00	U
10061-01-5----	cis-1,3-dichloropropene	5.00	U
79-01-6-----	trichloroethene	5.00	U
124-48-1-----	dibromochloromethane	5.00	U
79-00-5-----	1,1,2-trichloroethane	5.00	U
71-43-2-----	benzene	5.00	U
10061-02-06---	trans-1,3-dichloropropene	5.00	U
75-25-2-----	bromoform	5.00	U
108-10-1-----	4-methyl-2-pentanone	10.	U
591-78-6-----	2-hexanone	10.	U
127-18-4-----	tetrachloroethene	5.00	U
79-34-5-----	1,1,2,2-tetrachloroethane	5.00	U
108-88-3-----	toluene	5.00	U
108-90-7-----	chlorobenzene	5.00	U
100-41-4-----	ethylbenzene	5.00	U
100-42-5-----	styrene	5.00	U
1330-20-7-----	xylene (total)	5.00	U

Reviewed by:

Date:

Oak Ridge National Laboratory
Analytical Chemistry Division
Results of Analyses
Organic Analysis Laboratory

Customer Name: WESLEY Date Received 8-Feb-1991 14:40
Request Number: OAL94084 Charge Number 33300412 Approved By _____
Project Number Dept Number 3325
Series CYM Date of Report 31-JUL-91 Date: _____
Comments COPY TO RW KENNEMORE BLDG 7910 MS 6387

Analy No.	Customers Id	Date/Time Sampled	Matrix	Material Desc.	Analysis	Result	Units
910208-049	13027-1-1-1A	8-Feb-1991 13:24	OIL/ACID	OIL/RAG/BATTERY			
			ONCE				
					1,1-Dichloroethylene	P 0.70	MG/L
					1,2-Dichloroethane	P 0.50	MG/L
					1,4-Dichlorobenzene	P 7.50	MG/L
					2,4,5-TP (Silvex)	P 1	UG/ML
					2,4,5-Trichlorophenol	P 400.00	MG/L
					2,4,6-Trichlorophenol	P 2.00	MG/L
					2,4-D	P 10	UG/ML
					2,4-Dinitrotoluene	P 0.13	MG/L
					Benzene	P 0.50	MG/L
					Carbon tetrachloride	P 0.50	MG/L
					Chlorodane	P 0.03	MG/L
					Chlorobenzene	P 100.00	MG/L
					Chloroform	P 6.00	MG/L
					Cresol	P 200.00	MG/L
					Endrin	P 0.02	MG/L
					Heptachlor	P 0.008	MG/L
					Heptachlor epoxide	P 0.008	MG/L
					Hexachlorethane	P 3.00	MG/L
					Hexachlorobenzene	P 0.13	MG/L
					Hexachlorobutadiene	P 0.50	MG/L
					Lindane	P 0.40	MG/L
					Methoxychlor	P 10.00	MG/L
					Methyl ethyl ketone	P 200.00	MG/L
					Nitrobenzene	P 2.00	MG/L
					Pentachlorophenol	P 100.00	MG/L
					Pyridine	P 5.00	MG/L
					TOTAL PCB	< 2	PPM
					Tetrachloroethylene	P 0.70	MG/L
					Toxaphene	P 0.50	MG/L
					Trichloroethylene	P 0.50	MG/L
					Vinyl chloride	P 0.20	MG/L
					m-Cresol	P 200.00	MG/L
					o-Cresol	P 200.00	MG/L
					p-Cresol	P 200.00	MG/L

|Analy No. Customers Id Date/Time Sampled |

|Matrix Material Desc. |

|Frequency

910208-049 13027-1-1-2A 8-Feb-1991 13:25

OIL/ACID OIL/RAG/BATTERY

ONCE

Analysis

Result Units

1,1-Dichloroethylene	P	0.70	MG/L
1,2-Dichloroethane	P	0.50	MG/L
1,4-Dichlorobenzene	P	7.50	MG/L
2,4,5-TP (Silvex)	P	1	UG/ML
2,4,5-Trichlorophenol	P	400.00	MG/L
2,4,6-Trichlorophenol	P	2.00	MG/L
2,4-D	P	10	UG/ML
2,4-Dinitrotoluene	P	0.13	MG/L
Benzene	P	0.50	MG/L
Carbon tetrachloride	P	0.50	MG/L
Chlorodane	P	0.03	MG/L
Chlorobenzene	P	100.00	MG/L
Chloroform	P	6.00	MG/L
Cresol	P	200.00	MG/L
Endrin	P	0.02	MG/L
Heptachlor	P	0.008	MG/L
Heptachlor epoxide	P	0.008	MG/L
Hexachlorethane	P	3.00	MG/L
Hexachlorobenzene	P	0.13	MG/L
Hexachlorobutadiene	P	0.50	MG/L
Lindane	P	0.40	MG/L
Methoxychlor	P	10.00	MG/L
Methyl ethyl ketone	P	200.00	MG/L
Nitrobenzene	P	2.00	MG/L
Pentachlorophenol	P	100.00	MG/L
Pyridine	P	5.00	MG/L
TOTAL PCB		2.69	PPM
Tetrachloroethylene	P	0.70	MG/L
Toxaphene	P	0.50	MG/L
Trichloroethylene	P	0.50	MG/L
Vinyl chloride	P	0.20	MG/L
m-Cresol	P	200.00	MG/L
o-Cresol	P	200.00	MG/L
p-Cresol	P	200.00	MG/L

Time Sampled :

Feb-1991 13:35	Analysis		Result	Units	Procedure No.	Completed
	1,1-Dichloroethylene	P	0.70	MG/L	EPA-1311	26-Jun-1991
	1,2-Dichloroethane	P	0.50	MG/L	EPA-1311	26-Jun-1991
	1,4-Dichlorobenzene	P	7.50	MG/L	EPA-1311	30-Jul-1991
	2,4,5-TP (Silvex)	P	1	UG/ML	EPA-1311	30-Jul-1991
	2,4,5-Trichlorophenol	P	400.00	MG/L	EPA-1311	30-Jul-1991
	2,4,6-Trichlorophenol	P	2.00	MG/L	EPA-1311	30-Jul-1991
	2,4-D	P	10	UG/ML	EPA-1311	30-Jul-1991
	2,4-Dinitrotoluene	P	0.13	MG/L	EPA-1311	10-Jul-1991
	Benzene	P	0.50	MG/L	EPA-1311	26-Jun-1991
	Carbon tetrachloride	P	0.50	MG/L	EPA-1311	26-Jun-1991
	Chlorodane	P	0.03	MG/L	EPA-1311	19-Mar-1991
	Chlorobenzene	P	100.00	MG/L	EPA-1311	26-Jun-1991
	Chloroform	P	6.00	MG/L	EPA-1311	26-Jun-1991
	Cresol	P	200.00	MG/L	EPA-1311	30-Jul-1991
	Endrin	P	0.02	MG/L	EPA-1311	19-Mar-1991
	Heptachlor	P	0.008	MG/L	EPA-1311	19-Mar-1991
	Heptachlor epoxide	P	0.008	MG/L	EPA-1311	19-Mar-1991
	Hexachlorethane	P	3.00	MG/L	EPA-1311	30-Jul-1991
	Hexachlorobenzene	P	0.13	MG/L	EPA-1311	30-Jul-1991
	Hexachlorobutadiene	P	0.50	MG/L	EPA-1311	30-Jul-1991
	Lindane	P	0.40	MG/L	EPA-1311	19-Mar-1991
	Methoxychlor	P	10.00	MG/L	EPA-1311	19-Mar-1991
	Methyl ethyl ketone	P	200.00	MG/L	EPA-1311	26-Jun-1991
	Nitrobenzene	P	2.00	MG/L	EPA-1311	30-Jul-1991
	Pentachlorophenol	P	100.00	MG/L	EPA-1311	30-Jul-1991
	Pyridine	P	5.00	MG/L	EPA-1311	30-Jul-1991
	TOTAL PCB		< 2	PPM		30-Jul-1991
	Tetrachloroethylene	P	0.70	MG/L	EPA-1311	26-Jun-1991
	Toxaphene	P	0.50	MG/L	EPA-1311	19-Mar-1991
	Trichloroethylene	P	0.50	MG/L	EPA-1311	26-Jun-1991
	Vinyl chloride	P	0.20	MG/L	EPA-1311	26-Jun-1991
	m-Cresol	P	200.00	MG/L	EPA-1311	30-Jul-1991
	o-Cresol	P	200.00	MG/L	EPA-1311	30-Jul-1991
	p-Cresol	P	200.00	MG/L	EPA-1311	30-Jul-1991

Time Sampled	Analysis	Result	Units	Procedure No.	Completed	
Feb-1991 13:35 2A BATTERY	1,1-Dichloroethylene	P 0.70	MG/L	EPA-1311	26-Jun-1991	
	1,2-Dichloroethane	P 0.50	MG/L	EPA-1311	26-Jun-1991	
	1,4-Dichlorobenzene	P 7.50	MG/L	EPA-1311	30-Jul-1991	
	2,4,5-TP (Silvex)	P 1	UG/ML	EPA-1311	30-Jul-1991	
	2,4,5-Trichlorophenol	P 400.00	MG/L	EPA-1311	30-Jul-1991	
	2,4,6-Trichlorophenol	P 2.00	MG/L	EPA-1311	30-Jul-1991	
	2,4-D	P 10	UG/ML	EPA-1311	30-Jul-1991	
	2,4-Dinitrotoluene	P 0.13	MG/L	EPA-1311	10-Jul-1991	
	Benzene	P 0.50	MG/L	EPA-1311	26-Jun-1991	
	Carbon tetrachloride	P 0.50	MG/L	EPA-1311	26-Jun-1991	
	Chlorodane	P 0.03	MG/L	EPA-1311	19-Mar-1991	
	Chlorobenzene	P 100.00	MG/L	EPA-1311	26-Jun-1991	
	Chloroform	P 6.00	MG/L	EPA-1311	26-Jun-1991	
	Cresol	P 200.00	MG/L	EPA-1311	30-Jul-1991	
	Endrin	P 0.02	MG/L	EPA-1311	19-Mar-1991	
	Heptachlor	P 0.008	MG/L	EPA-1311	19-Mar-1991	
	Heptachlor epoxide	P 0.008	MG/L	EPA-1311	19-Mar-1991	
	Hexachlorethane	P 3.00	MG/L	EPA-1311	30-Jul-1991	
	Hexachlorobenzene	P 0.13	MG/L	EPA-1311	30-Jul-1991	
	Hexachlorobutadiene	P 0.50	MG/L	EPA-1311	30-Jul-1991	
	Lindane	P 0.40	MG/L	EPA-1311	19-Mar-1991	
	Methoxychlor	P 10.00	MG/L	EPA-1311	19-Mar-1991	
	Methyl ethyl ketone	P 200.00	MG/L	EPA-1311	26-Jun-1991	
	Nitrobenzene	P 2.00	MG/L	EPA-1311	30-Jul-1991	
	Pentachlorophenol	P 100.00	MG/L	EPA-1311	30-Jul-1991	
	Pyridine	P 5.00	MG/L	EPA-1311	30-Jul-1991	
	TOTAL PCB	< 2	PPM		30-Jul-1991	
		Tetrachloroethylene	P 0.70	MG/L	EPA-1311	26-Jun-1991
		Toxaphene	P 0.50	MG/L	EPA-1311	19-Mar-1991
		Trichloroethylene	P 0.50	MG/L	EPA-1311	26-Jun-1991
		Vinyl chloride	P 0.20	MG/L	EPA-1311	26-Jun-1991
	m-Cresol	P 200.00	MG/L	EPA-1311	30-Jul-1991	
	o-Cresol	P 200.00	MG/L	EPA-1311	30-Jul-1991	
	p-Cresol	P 200.00	MG/L	EPA-1311	30-Jul-1991	
8-Feb-1991 13:51 ATOP	TOTAL pcb	68.2	PPM		26-Jun-1991	

910200-053 13027-1-3-1ATOP 8-Feb-1991 13:51

910208-054 13027-1-3-2ATOP 8-Feb-1991 13:51

OIL/ACID OIL/RAG/BATTERY
ONCE

TOTAL PCB 67.1 PPM

End of data for Request Number OAL94084 Total pages = 5 Cust. Copy _____ File Copy _____

910222-082 13027-1-2-2A 8-Feb-1991 13:35

AS	< 5.5E-01	MG/L
BA	8.9E-01	MG/L
CD	< 5.5E-02	MG/L
CR	<4.4E-02	MG/L
HG	< 0.02	MG/L
PB	< 5.4E+00	MG/L
SE	<5.5E-01	MG/L

END OF DATA FOR REQUEST NUMBER CPA11768 TOTAL PAGES = 2 CUST. COPY ____ FILE COPY ____

OAK RIDGE NATIONAL LABORATORY
 ANALYTICAL CHEMISTRY DIVISION
 RESULTS OF ANALYSES
 CHEMICAL AND PHYSICAL ANALYSIS

CUSTOMER NAME	L.WESLEY	DATE RECEIVED	22-FEB-1991 13:20
REQUEST NUMBER	CPA11768	CHARGE NUMBER	33300412 AP
PROJECT NUMBER		DEPT NUMBER	3390
SERIES	CYH	DATE OF REPORT	6-MAR-91

ANALY NO.	CUSTOMERS ID	DATE/TIME SAMPLED	MATRIX	MATERIAL DESC.	FREQUENCY	ANALYSIS	RESULT
910222-079	13027-1-1-1A	8-FEB-1991 13:24	OIL/ACID	OIL/RAG/BATTERY		AG	< 5.5E
						AS	< 5.5E
						BA	2.9E
						CD	9.9E
						CR	< 4.4E
						HG	< 0
						PB	< 5.5E
						SE	< 5.5E
910222-080	13027-1-1-2A	8-FEB-1991 13:24	OIL/ACID	OIL/RAG/BATTERY		AG	< 5.5E
						AS	< 5.5E
						BA	1.2E
						CD	1.2
						CR	< 4.4E
						HG	< 0
						PB	< 5.5E
						SE	< 5.5E
910222-081	13027-1-2-1A	8-FEB-1991 13:35	OIL/ACID	OIL/RAG/BATTERY		AG	< 5.5E
						AS	< 5.5E
						BA	9.2E
						CD	< 5.5E
						CR	< 4.4E
						HG	< 0
						PB	< 5.5E
						SE	< 5.5E
910222-082	13027-1-2-2A	8-FEB-1991 13:35	OIL/ACID	OIL/RAG/BATTERY		AG	< 5.5E

APPENDIX 1-2

TEST METHODS FOR THE CH-TRU WASTE AND LLW

Test methods for the CH-TRU waste storage units

Analyte or group	Sample preparation method¹	Analytical method¹
Polychlorinated biphenyls (PCBs)	3510, 3550, 3541, 3580, 3620, 3650, 3665,	8080, 8081
Volatile organic compounds ²	1311, 3580, 5030	8015, 8240, 8260
Semi-volatile organic compounds	1311, 3510, 3541, 3550, 3580, 3650	8270
Heavy metals ²	1311, 3010, 3015, 3020	6010, 6020, 7470, 7471, 7000 Series
Flash point	1010, 1020	1010, 1020
Cyanides	9010, 9010A	9010, 9010A
Sulfides	9030, 9030A	9030, 9030A
Gross radiation scan		Gross alpha/gross beta activity, gamma scan
Specific isotopes		Case specific ³
pH	9040, 9041	9040, 9041

¹ Methods referenced from *Test Methods for Evaluating Solid Waste, SW-846, Third Edition and Updates*. Test methods may vary based on regulatory updates and new technology. Method deviations required by the radioactive nature or other characteristics of the samples will be documented in the sample run log notebooks maintained by the analytical laboratory.

² For organic liquid waste samples or samples with other matrix interferences (including high levels of radioactivity), the toxicity characteristics may be determined by total constituent analysis of the sample in lieu of Method 1311, the Toxicity Characteristic Leaching Procedure (TCLP).

³ Testing and methods will be governed by DOE and WAC requirements.

Waste analysis plan

Hazardous waste type	Parameter	Rationale	Test method
Spent halogenated solvent mixtures	Solvent constituents	Hazardous waste from nonspecific sources per Subpart D, Section 261.31	Total Organics Halides (TOX) Method 9020/GC/MS Method 8240 or 8260 for volatile organics
Spent nonhalogenated solvent mixtures	a) Flash point b) Organic carbon	a) Ignitable waste per Subpart C, Section 261.21 b) Hazardous wastes from nonspecific sources per Subpart D, Section 261.31	a) Pensky-Martens closed-cup Method 1010 b) Total Organic Carbon (TOC) Method 9060 ¹

¹ Not applicable to solids.

Waste analysis plan

Hazardous waste type	Parameter	Rationale	Test method
Waste mixtures containing cyanides, arsenic	Total cyanides and arsenic	Hazardous wastes from nonspecific sources per Subpart D, Section 261.31 and/or TCLP ¹ wastes per Subpart C, Section 261.24	TCLP Method 1311 ¹ ; 6010 for As; 9010 for cyanides
Waste mixtures containing hexavalent chromium, lead, or cadmium	Concentrations of toxic heavy metals	Hazardous wastes from nonspecific sources per Subpart D, Section 261.31 and/or TCLP ¹ toxic wastes per Subpart C, Section 261.24 and Land Disposal Restrictions Section 268	TCLP Method 1311 ¹ ; Inductively Coupled Plasma (ICP) Method 6010 Cr, Pb, Cd

Hazardous waste type	Parameter	Rationale	Test method
Waste oils, halogenated solvent mixtures, and oily solids	a) Flash point b) Solvent constituents	Per RCRA mixture rule, these wastes must be handled as hazardous waste because of listed hazardous constituents (e.g., perchloroethylene, 1,1,1-trichloroethane)	a) Pensky-Martens closed-cup Method 1010 b) GC/MS Method 8240 or 8260 for Volatile Organics
Waste oil not classified as used oil fuel (266.40)	Toxicity characteristic	Characteristic waste per 40 CFR 261.33	TCLP ¹ Method 1311 et al.

¹ Toxicity Characteristic Leaching Procedure.

Waste analysis plan

Hazardous waste type	Parameter	Rationale	Test method
Bulk quantities of mixtures of listed wastes (e.g., mixture of acetone, pyridine, benzene, chloroform, coal oil, water)	a) Flash point	Many wastes streams generated which are mixtures of hazardous wastes listed or characterized under Subpart D	a) Pensky-Martens closed-cup Method 1010
	b) Reactivity		b) Sulfides or cyanides, Method 7.3 Reactivity ¹
	c) pH		c) Electro-chemical Method 9040
	d) Toxicity characteristic		d) TCLP ² organics Method 1311 or Method 3580 depending on concentration; 8240 or 8260 for volatiles

Hazardous Waste Type	Parameter	Rationale	Test Method
Chemical waste with unknown constituents (small quantities)	a) Flash point	Identify constituent characteristics of waste to determine how it shall be handled	a) Pensky-Martens Closed-Cup Method 1010
	b) Reactivity		b) Sulfides or cyanides, Method 7.3 Reactivity
	c) pH		c) Electro-Chemical Method 9040
	d) Toxicity characteristic		d) TCLP ¹ Organics Method 1311

¹ Solids only.

² Toxicity Characteristic Leaching Procedure.

APPENDIX 1-3

QUALITY ASSURANCE/QUALITY CONTROL

Sampling QA/QC

The Environmental Monitoring (EM) QA Program contains the following elements:

- Standard Operating Procedures (SOPs) which detail the QA program, including chain-of-custody, documentation/verification, and sampling procedures;
- an internal audit program and self assessment; and
- a QC Plan for EM.

Sampling QA Organization: The EC organization, to whom EM reports, has a full-time QA Specialist provided by the Quality Department.

EM has a staff position to oversee all QA functions.

EM Sample Management: EM has developed a chain-of-custody form that follows EPA guidelines and is used for all samples collected. EM chain-of-custody is carried out as specified by the regulations from sample attainment to receipt by the analytical laboratory.

Instrument Maintenance/Calibration: Instruments used for field measurements are on a routine maintenance schedule, standardized daily, and are calibrated monthly or as needed based on the daily standardizations. SOPs have been written and approved for all calibrations and standardizations.

Training for Sampling Staff: Training for EM members is accomplished by the following activities:

- training modules that have been developed for sampling methodology, National Pollutant Discharge Elimination System sampling, RCRA groundwater sampling, QA, radiation sampling, soil/sediment sampling, and air/stack sampling are offered on an as-needed basis, at least once every two years;
- training to specific SOPs developed and carried out by the Training Section;
- training "short course" modules that have been developed by EM and are available to members of the section;
- quarterly testing on selected activities; and

- Superfund Amendments and Reauthorization Act/Occupational Safety and Health Administration (SARA/OSHA) initial and refresher training, radiation worker training, hazardous materials training, and reactor safety training, which is conducted by the Training Section.

Analytical Request Methods: All samples delivered to analytical laboratories are accompanied by a Request for Analytical Services Form. This form contains a column for Analysis Requested and the Method Identification Number. Methods are generally taken from SW-846, except for Clean Water Act permit samples, which are dictated by the act.

Sampling Corrective Actions: Internal audits are carried out periodically by the Section QA office and the Section Head. Any findings are placed on a computer system, and follow-up is carried out by the Measurement Assurance Section and the Quality Department.

External audit findings are also placed on the computer system and follow-up is carried out by the Measurement Assurance Section and the Quality Department.

Laboratory QA/QC

The Analytical Services (AS) and the Chemical and Analytical Sciences Division (CASD) policy on procedures is that they be consistent with sound scientific principles and current regulations and/or program requirements. Procedures must be complete and followed exactly as written to provide data comparability and data of known quality that meet sponsor requirements. Activities performed when using a procedure must be accurately and adequately documented. If deviations are necessary, they must be documented and approved. Specific means for handling deviations are described in division and group QA plans and procedures.

The AS Quality Assurance Program and the CASD Quality Assurance Program, which flow down from the Quality Assurance Manual, provide the requirements for group QA plan supplements. Group QA plan supplements list all standard analytical methods and standard operating procedures. Waste analysis falls under the supplement plans covering inorganic analysis, organic analysis, and low-level radiochemical analyses.

QA Organization: A QA specialist is assigned to the AS and the CASD divisions.

Sample Management: The Sample Management Officer receives and inspects incoming samples, records all pertinent data, and initiates a Sample Control Record that documents the transfer of custody and the movements of the sample from preparation, analysis, storage, and disposal. At the time of receipt, the sample, with all pertinent information, is logged into the data management system and is assigned a unique sample identification number that can be

cross-referenced to the customer sample identification. The data management system and the sample control records permit all work on a sample to be traceable from the time it is received until analytical results are released and the sample disposal is complete.

Applicable site procedures and the AS and CASD Quality Assurance Programs dictate the minimum requirements for instrument maintenance, instrument calibration, personnel training, analytical methods, reagents/standards, and corrective actions. They are, however, implemented and augmented by division and group procedures.

The AS Quality Control Program defines minimum division-level requirements for handling standards, reagents, sample analysis, instrument calibration, instrument maintenance, and corrective actions. The QC program measures the performance of each analyst and serves to document the levels of competence.

Instructions for Writing and Issuing Procedures lists the subjects that must be included in division and group procedures. Standard analytical methods are required to address reagents/standards, calibration and standardization, and QA/QC training requirements and instructions for reporting and performing corrective actions. Analytical methods must be followed exactly as written and must provide instructions on how to handle deviations.

Group QA plan supplements and procedures implement and often expand the requirements previously discussed. In addition, they list all controlled equipment with calibration requirements and procedures.

Data Management

After a generator submits the 2109 form set or equivalent to WO, it is reviewed for completeness and accuracy. If complete and accurate, the waste is approved for pickup. The generator-supplied waste data is then transferred to the tracking system. The signed hard copies are then filed.

APPENDIX 1-4

ORNL WASTE EXAMINATION AND ASSAY FACILITY

**This section has been removed from the permit.
The WEAFF, Building 7824, has been closed and
was removed from the permit by TDEC on 3/6/06.**

APPENDIX 1-5

EXAMPLES OF WASTE FORMS AND LABELS

REQUEST FOR STORAGE OR DISPOSAL OF RADIOACTIVE SOLID WASTE OR SPECIAL MATERIALS [NO.]

REQUESTER: EXECUTES THIS SECTION BEFORE ARRANGING MATERIAL TRANSFER

OFFSITE
 CONSTRUCTION

(CHECK IF APPLICABLE)

COST SYMBOL: _____ COST ADJUSTMENT: _____

WASTE CLASSIFICATION (CHECK ONLY ONE)	TYPE OF WASTE (CHECK ONLY ONE)	BRIEF DESCRIPTION
1. <input type="checkbox"/> TRU OR U-233 (RETRIEVABLE) ($> 100 \mu\text{Ci/g}$)	<input type="checkbox"/> (BW) BIOLOGICAL WASTE	_____
2. <input type="checkbox"/> URANIUM/THORIUM	<input type="checkbox"/> (CE) CONTAMINATED EQUIPMENT	_____
3. <input type="checkbox"/> FISSION PRODUCT	<input type="checkbox"/> (DD) DECONTAMINATION DEBRIS	_____
4. <input type="checkbox"/> INDUCED ACTIVITY	<input type="checkbox"/> (DS) DRY SOLIDS	_____
5. <input type="checkbox"/> TRITIUM	<input type="checkbox"/> (ES) SOLIDIFIED SLUDGE	_____
6. <input type="checkbox"/> BETA-GAMMA TRU OR U-233 ($> 100 \mu\text{Ci/g}$) (RETRIEVABLE)	<input type="checkbox"/> (NC) NOT CLASSIFIED	_____
7. <input type="checkbox"/> ALPHA TRU OR U-233 ($< 100 \mu\text{Ci/g}$) BETA-GAMMA TRU OR U-233 ($< 100 \mu\text{Ci/g}$)	CONTAINER TYPE (CHECK ONLY ONE)	
8. <input type="checkbox"/> OTHER _____	1. <input type="checkbox"/> 55 GAL SS DRUM	9. <input type="checkbox"/> OTHER _____
9. <input type="checkbox"/> LANDFILL/SUSPECT	2. <input type="checkbox"/> 30 GAL SS DRUM	10. <input type="checkbox"/> GI CAN
10. <input type="checkbox"/> CONTAMINATED ASBESTOS	3. <input type="checkbox"/> 4-W" WALL CONCRETE CASK	11. <input type="checkbox"/> PLASTIC
	4. <input type="checkbox"/> 6" WALL CONCRETE CASK	12. <input type="checkbox"/> DUMPSTER
	5. <input type="checkbox"/> 12" WALL CONCRETE CASK	13. <input type="checkbox"/> NONE
	6. <input type="checkbox"/> 55 GAL BI DRUM	14. <input type="checkbox"/> CASK NO. _____ WALL THICKNESS _____ IN. SHIELDING I/TL _____
	7. <input type="checkbox"/> 30 GAL BI DRUM	15. <input type="checkbox"/> METAL BOX _____
	8. <input type="checkbox"/> WOODEN BOX	

PRINCIPAL ISOTOPE(S): (BEST ESTIMATE)

1. IDENTITY _____ CI QUANTITY _____ GRAMS CURIES
 2. IDENTITY _____ DIA QUANTITY _____ GRAMS CURIES

REQUESTER'S COMMENTS FOR FIELD: _____ TOTAL CURIES (BEST ESTIMATE): _____

EXAMPLE ONLY

WFO FIELD REPRESENTATIVE APPROVAL SIGNATURE: _____ DATE: _____

HEALTH PHYSICIST: EXECUTES THIS SECTION BEFORE MATERIAL TRANSFER

RADIATION DATA:

BETA-GAMMA: 7/PC PACKAGE _____ SURF/IN @ _____ IN.

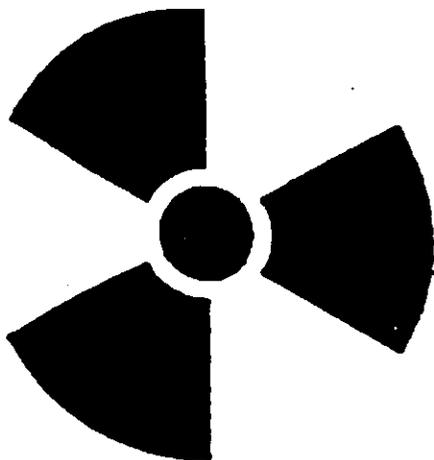
SURFACE CONT. _____ SURF/CM² _____ SURF/CM²/MINUTE NEUTRON READING _____ SURF/IN

HP SURVEYOR'S COMMENTS FOR THOSE HANDLING WASTE IN THE FIELD: _____

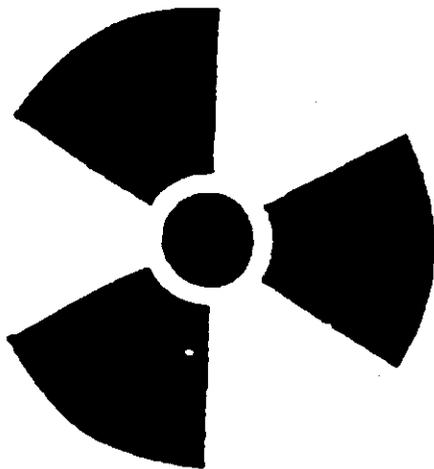
HP'S SIGNATURE: _____ DATE: _____

UNF-0022
 13 0-001

REGULATED WASTE - FURNISH APPROVAL COMMENTS TO DOE
 GUP - OBTAINED BY YOUR FIELD OFFICE
 CASUALTY - OBTAINED BY CASUALTY



EXAMPLE ONLY



RADIATION SURVEY READINGS

EXTERNAL DOSE RATE

Beta mrem/hr at
Gamma mrem/hr at
Neutron mrem/hr at

TOTAL DOSE MREM/HR at
RATE MREM/HR at

SURFACE CONTAMINATION

ALPHA (MAX) PROBE d/m/100 cm2
SMEAR d/m/100 cm2
BETA-GAMMA (MAX) PROBE mrad/hr
SMEAR d/m/100 cm2

Surveyed by Date



DESCRIPTION OF CONTENTS

COMPACT SOLID LIQUID GAS FINE POWDER
CHEMICAL FORM

RADIOISOTOPE CONTENT (uCi, mCi, Ci) IF KNOWN

SHIPPER LOCATION TOTAL

RECEIVER LOCATION

RECEIVER NOTIFIED OF SHIPMENT YES NO

PRECAUTIONS AND INSTRUCTIONS FOR HANDLING, OPENING, STORAGE, OR DISPOSAL

SEE OTHER SIDE



HEALTH PHYSICS RESTRICTION TAG



LOCATION OF SURVEY (ROOM NO) _____

DESCRIPTION OF MATERIAL _____

Originator/Division: _____

REMARKS _____

REMARKS: THIS EQUIPMENT WAS NOT CHECKED FOR RADIOACTIVITY ON THE INSIDE.

THIS TAG INDICATES THAT ONLY THE OUTSIDE SURFACES HAVE BEEN CHECKED AND FOUND FREE OF CONTAMINATIONS.

Date _____ Surveyed By: (Name and Badge No) _____

IN THE EVENT THIS EQUIPMENT IS TO BE WORKED ON IT MUST BE REMOVED TO AN APPROVED AREA AND PROVISIONS MADE TO GAIN ACCESS TO THE INSIDE SURFACES FOR RADIOACTIVITY CHECK PRIOR TO ITS USE.

UCN 24818 12 7 800 SEE OTHER SIDE

HEALTH PHYSICS RESTRICTION

SURFACE CONTAMINATION		Check if below lower detection limit
Max. Fixed & Removable Alpha	d/m/100 cm ²	<input type="checkbox"/>
Removable Alpha	d/m/100 cm ²	<input type="checkbox"/>
Removable Beta/Gamma	d/m/100 cm ²	<input type="checkbox"/>
Removable Beta/Gamma	d/m/100 cm ²	<input type="checkbox"/>

HEALTH PHYSICS INSTRUMENTS USED

Alpha Instrument ID: _____

Beta/Gamma Instrument ID: _____

UCN 24818 BACK SEE OTHER SIDE

A.U.S. GPO: 1960-781-184

REQUEST FOR NUCLEAR SAFETY REVIEW AND APPROVAL

(See ORNL H.P. Manual Procedure No. 2.4)

Revision Code

Descriptive Title (Unrestricted):

Date Approved: Approved

Control Area	Science Area	Building Room	Division	Duration of Operation
--------------	--------------	---------------	----------	-----------------------

**PART I
FISSILE MATERIAL**

Form Composition and Density

Mass of Batch or Equipment Unit **Weight Percent Fissile Isotopes**

Shipping, Transfer or Storage Container Description (minimum labeling between containers)

Proximity to other Fissile Material (and their descriptions) in or adjacent to the proposed operating/storage area (attach sketches as necessary and other source NER NOL in the area)

CONTINUED ON SHEET _____

**PART II
PROPOSED OPERATION AND SAFETY CONSIDERATIONS**

EXAMPLE ONLY

PROPOSED PROCEDURE - Summarize what procedures and equipment are proposed and what operational limits are required. Attach sketches, detailed procedures, or engineering drawings, etc.

CONTINUED ON SHEET _____

ABNORMAL CONDITIONS - List recognized potential abnormal operating conditions (and proposed controls) for consideration in the nuclear safety analysis.

CONTINUED ON SHEET _____

Requested by: Material Control Area Supervisor	Date	Reviewed for Approval by: ORNL Site Rev Comm	Date
Proposed Reviewed by: Research Control Officer	1-5-8	Approved by: Office of Operational Safety	Date

NO.

SUMMARIZE WRITING OF OPERATING PARAMETERS (PRESS. CONTROLS, INJECTION, ETC.) TO ENSURE CRITICAL SAFETY AND NOT SUBJECTIVE DETERMINATION (DOCUMENT NO., SUBJECT, ETC.).

PART III
CRITICALITY SAFETY ANALYSIS

EXAMPLE ONLY

CONTINUED ON SHEET _____

SAFETY CONTROL OR CONDITIONS TO ENSURE OPERATIONS WITHIN SAFETY LIMITS PROVIDED IN PART III.

PART IV
CONDITIONS OF APPROVAL

CONTINUED ON SHEET _____

Approved Control Area & Approval	Date 1-5-9	Criticality Safety Other	Date
----------------------------------	---------------	--------------------------	------

ORNL NUCLEAR MATERIALS INTRA-LABORATORY TRANS. -A

TRAF
MC. 62

MBA		CONTROL AREA			MBA REPR. SIGNATURE			DATE		TRANSACTION TYPE		PURPOSE OF TRANSFER TRANSACTION	
NON													
TO													
LINE	ITEM NUMBER		PROJECT NO.	M/T	C/P	OWNER CODE	PIECE NO.	COUNTRY OF ORIGIN	GROSS WT. (lbs.)	MAY'L NET WT.	ELEMENT WEIGHT	WF % ISOTOPE	ISOT. WRI
	FROM	TO											
1													
2													
3													
4													
5													
LINE	LIMITS OF ERROR		WPAS NO.	DATE EXP. TO RETURN	I/C	S/C	MEASUREMENT		ANALY. REPORT NO.	ASSAY REPORT NO.	TAMPER SEAL NO.	CONT. N	
	ELEMENT	ISOTOPE					DATE	METH.					
1	1-5-10												
2													
3													
4													
5													
EXAMPLE ONLY													
PERTINENT COMMENTS													
LINE													
1													
2													
3													
4													
5													

WASTE ITEM DESCRIPTION

ALL FIELDS MUST BE COMPLETED

Generator Process Information					
W1. Generator's Name (Print)	W2. Badge Number	W3. Generator's Phone No.		W4. Mail Stop	W5. Charge No/WO
W6. Generator's Company	W7. Origin Division	W8. Origin Site	W9. Origin Facility	W10. Origin Room/Area	W11. Radiological Area: <input type="checkbox"/> Yes <input type="checkbox"/> No
W12. Process Stream ID	W13. Process Category	W14. Process Activity	W15. AWA Number		
W16. Physical Form	W17. Material Type(s)			W18. Waste Item Description Attachment	

Waste Subcategories (Check all)					
	Yes	No		Yes	No
W20. Biological			W23. Construction Debris		
W21. Accountable			W24. Medical		
W22. Carcinogen			W25. Sanitary/Industrial		
			W26. Classified		
			W27. Friable Asbestos		
			W28. Non-Friable Asbestos		

W29. Waste Description	

Handling/Pickup Information					
P1. Holding Site	P2. Holding Facility	P3. Holding Rm/Area	P4. Pickup Site	P5. Pickup Facility	P6. Pickup Area
P7. Respirator <input type="checkbox"/> None <input type="checkbox"/> Half <input type="checkbox"/> Full <input type="checkbox"/> Unknown			P8. Cartridge Type		
P9. Handling Instructions					

10. Item/Container _____ of _____

Waste Item/Container Information						
11. Waste Item ID Number	12. Origin Date	13. RCRA 90-day Start Date	14. (Affix Barcode Label Here)			
15. Container ID Number	16. PCB Start Date	17. Absorbent Materials <input type="checkbox"/> Yes <input type="checkbox"/> No				
18. NRC/CA Form	19. Est. Net Vol	20. Date				
21. Area of Contamination <input type="checkbox"/> in ² <input type="checkbox"/> cm ² <input type="checkbox"/> ft ²	22. Est. Gross Wt	23. Units	24. Inner Container Type	25. Outer Container Type		
26. HP Tag No.	Surface Contamination (dpm/100cm ²)		Dose Rate at Surface (mrem/hr)	Dose Rate at 1-Meter (mrem/hr)	Dose Rate at 1 Foot (mrem/hr)	Instrument Identification
	Transfer	Direct Reads				
Alpha						
Beta/Gamma						
Neutron						

Signatures and Approvals					
S1. Generator	Badge	Date	S1. HP Technician	Badge	Survey Date
S2. Verification Officer	Badge	Date	S1. Derivative Classifier	Badge	Date

UCN-3109 (08-01-06)

TRU/TRU MIXED

WASTE

ATTACHMENT B

ALL FIELDS MUST BE COMPLETED

Prohibited Items	Yes	No	Yes	No
B1. Pyrophoric Materials			B6. Ignition Sources	
B2. Active Chelating Agents (> 1% of waste)			B7. Free Liquids	
B3. Sealed Internal Containers > 1 gallon			B8. Ethological Agents	
B4. Explosive Materials			(Reserved)	
B5. Small Particulates (<= 1% by wt < 10um; <= 15% by wt < 100um)				

B9. Biological Waste <input type="checkbox"/> Yes <input type="checkbox"/> No	B10. Chelating Agents <input type="checkbox"/> Yes <input type="checkbox"/> No	B11. Heat Sealed Bags <input type="checkbox"/> Yes <input type="checkbox"/> No	B12. Ion Exchange Resins <input type="checkbox"/> Yes <input type="checkbox"/> No	B13. TRUCON Code	B14. Fuel/Flux Power w/r
B15. Combustible Material vol%	B16. Beryllium ppm	B17. TRU Waste Type(s) grams			
B18. Number of Sealed Layers	B19. Sealed Layer Type(s)	B20. Special Use Waste <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	B21. RCN Handling Type <input type="checkbox"/> Contact <input type="checkbox"/> Remote		

Radiotope Determination Method		R7. Radiotope	R8. Quantity	R9. Units	R10. NAKI
Document Type	Document Number(s)			grams-pCi	Yes No
R1. Analysis LSID#	R2. NDA#				
R3. PK Form UCN 20116#					
R4. FILM CONTENT (PAGE OF U-235) grams	R5. ENRICHMENT (WT% OF U-235)				
R6. CHEMICAL FORM					

R11. Radiotope Contamination Sheet(s) _____ through _____ attached.

RCRA/TSCA Determination Method		Determination		Yes	No
Document Type	Document Number(s)	T3. RCRA Waste	T4. TSCA Waste		
T1. Analysis LSID#					
T2. PK Form UCN 20116#		T5. Underlying Hazardous Constituent(s) Present			
T6. PCB Present <input type="checkbox"/> Yes <input type="checkbox"/> No	T7. PCB Concentration ppm	T8. PCB Source Concentration ppm	T9. PCB Source Concentration Range (ppm) <input type="checkbox"/> NA <input type="checkbox"/> <= 1.99 <input type="checkbox"/> 2 - 49.99 <input type="checkbox"/> 50 - 499.99 <input type="checkbox"/> >= 500		

T10. Substance ID	T11. Code	T12. Units	T13. EPA Code(s)	T14. Underlying Hazardous Constituent <input type="checkbox"/> Yes <input type="checkbox"/> No
T15. Substance Name				

T10. Substance ID	T11. Code	T12. Units	T13. EPA Code(s)	T14. Underlying Hazardous Constituent <input type="checkbox"/> Yes <input type="checkbox"/> No
T15. Substance Name				

T16. Constituent Contamination Sheet(s) _____ through _____ attached.

VI. I certify that I have been provided sufficient information concerning the above described waste to apply the requirements of ES/WM-10. Waste Acceptance Criteria for the Oak Ridge Reservation, and, based on this information, I further certify that this waste material:

- 1) Is accurately described above and packaged in accordance with Waste Certification Procedure _____
Rev Date _____, and
- 2) Meet the Waste Acceptance Criteria for the TRU/TRU MIXED WASTE Category, as listed in ES/WM-10.
- 3) Or, if applicable, meets the conditions stipulated in variance number(s) _____

I further certify that all required documentation is attached to the UCN 2109 and that, to the best of my knowledge and belief, the information on the UCN 2109 is complete and accurate. I am currently authorized to perform Waste Certifier functions.

Signature Waste Certifier	Printed Name	Badge Number	Date
St. Derivative Classifier	Badge	Date	

EN-3109E (06-01-06)

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ATTACHMENT 2 SECURITY

2-1 SECURITY

2-1a Security Procedures and Equipment

The ORNL complex, within which the ORNL units covered in this document are located, is a controlled-access site with security measures to prevent unknowing entry and minimize the possibility of unauthorized entry of persons or livestock into the active portion of the units. Those features contribute to unit safety and security. Authorized personnel, when used throughout this section, are limited to WM staff who have had a minimum of 24 hours HAZWOPER training, RCRA basic training, Radiation Worker training and have assigned responsibilities for operating the unit. Other ORR personnel with a minimum of 24 hours HAZWOPER training, including staff who support facility operations [Plant and Equipment (P&E) staff] can obtain limited authorization from WM to enter certain badge reader gates. However, ORR personnel with limited authorization or visitors must be escorted by WM personnel in order to enter a waste storage unit.

The WPF has a comprehensive security system to prevent unauthorized contact with the hazardous waste management units located at the Unit. The security system consists of a combination of physical barriers, equipment, and surveillance procedures which are designed to control the entry of employees, contractors, and visitors to the Unit. When used in connection with the WPF, authorized personnel are limited to Operations and WM staff who have a minimum of 24 hours HAZWOPER training, RCRA basic training, Radiation Worker training and have assigned responsibilities for operating the unit. Other personnel can obtain limited authorization but must be escorted in order to enter a waste storage unit.

The WPF site is completely within a controlled-access area of the U.S. Department of Energy (DOE) - Oak Ridge Reservation (ORR). The only point of access to the Facility via a public roadway [i.e., State Route (SR) 95] is at the intersection of the gated, restricted-access road and SR 95.

2-1a(1)24-Hour Security Surveillance System

Employees are required to show identification badges to security guards when entering all primary gates to ORNL. Plant roads that connect to public roads are posted and gated to limit traffic to official use only. Visitors and contractors entering the ORNL complex must sign a log sheet, obtain a visitor pass at the east (main) gate, and must be escorted. Access to the SWSA 5 and SWSA 6 areas is limited by perimeter fences and locked gates. Access to the

2-1

Class 1 Modification - Dated: 2/2/98
Class ¹1 Modifications, Dated: 3/15/99, 10/29/02
Class 2 Modifications - Dated: 3/14/05 and 1/25/07
Temporary Authorization – Dated: 3/6/06

units in SWSA 7 will be controlled by fences and locked gates. Security at ORNL is maintained by a staff of trained security guards on a 24-h basis. Routine patrols of areas outside the main complex help provide continuous surveillance. All security guards are equipped with two-way radios and have direct communication with Laboratory Protection Personnel (LPP) such as the Fire Department, Laboratory Shift Superintendent (LSS), Laboratory Communications Center (LCC), and WO personnel. During remedial actions in these areas, the status and location of locked gates and fences may be altered to expedite the clean-up process. See Section 2-1a(2)(c) for a description of fence locations and removals in areas where remedial actions are taking place.

Security surveillance is maintained at the WPF Unit on a 24 hour basis. Surveillance will consist of monitoring traffic (i.e., people and vehicles) at Facility gates, patrolling Facility perimeter areas, and inspecting Facility barriers or equipment used to control entry into the Facility.

The WPF Unit barriers and equipment inspected by Facility personnel include the Facility perimeter fence, fence gates, area security lights, and communication devices such as the internal plant telephone, paging, and alarm system. The Facility perimeter fence and fence gates are inspected for damage or deterioration that would allow unauthorized entry into the Facility. These inspections are documented.

2-1a(2)Barrier and Means to Control Entry

2-1a(2)(a) Barrier

SWSA 5 is enclosed by an 8-ft high chain-link security fence topped with three strands of barbed wire. To enter SWSA 5 and Buildings 7855, 7823, and 7879, personnel must pass through a security gate that is closed at all times, and can be opened only by authorized personnel with approved access via an automated badge reader. Each building (except Building 7855) is also locked, and only security personnel or authorized personnel (operators) have keys. The combination of security gates, fences, and locked buildings serves to restrict unauthorized entry to the TRU units. During remedial actions in this area the status and location of locked gates and fences may be altered to expedite these actions. See Section 2-1a(2)(c) for a description of fence locations and removals in this area during remedial actions.

SWSA 6 is enclosed by an 8-ft-high chain-link security fence topped with three strands of barbed wire. To enter the SWSA 6 area and Buildings 7842 and 7878, personnel must pass through a security gate that is closed at all times. Each building is locked, and only security personnel or authorized personnel (operators) have keys. The combination of security gates, fences, and locked buildings serves to restrict unauthorized entry into the TRU units. A

description of the fence removal required for remedial action in this area is outlined in Section 2-1a(2)(c).

Waste storage units in SWSA 7 will be enclosed by an 8-ft-high chain-link security fence topped with three strands of barbed wire. The security gate will be closed at all times and can be opened only by authorized personnel. The TRU units will be locked, and only security personnel or authorized personnel (operators) will have keys.

Buildings 7883 and 7884 will be located within an 8-ft-high chain-link security fence. Gates (one or more) will provide access to the complex, although these gates may not always be locked. Only authorized personnel (security or operators) with an approved badge access will be able to enter the buildings. In addition, Buildings 7883 and 7884 will be equipped with locks on the doors, and only authorized personnel will be allowed a key. The combination of security gates and locked buildings will serve to restrict unauthorized entry.

The active portion of the WPF Unit is surrounded by chain link fence approximately six (6) ft in height. Fence gates are locked when not in use. Vehicular traffic will pass through a security point at the main gate. Shipments of materials and wastes will be directed to the receiving area where they will be met by site representatives. Personal and company vehicles will be directed to the Facility parking area. Only authorized personnel with an approved site badge have access to the waste storage areas. Access to the WPF is through a secure entrance point (gate). The entrance point is controlled by trained access control personnel who provide employees with approved site identification badges. Visitors are required to sign a visitors log and obtain a visitors badge. Visitors will be escorted by a site representative in waste storage areas.

2-1a(2)(b) Means to Control Entry

Access to SWSA 5 (Buildings 7855, 7823, and 7879) is through a secure entrance point (i.e., the badge reader security gate). The entrance point is locked at all times when authorized personnel are not entering or leaving the area. The buildings are locked at all times (with the exception of Building 7855) when authorized personnel are not present. The entrance to the open bay in Building 7855 is roped off, has a radiation shielding barrier, and is posted to restrict entry. Access is not allowed on weekends or holidays except during specially approved operating hours and by prearranged approval. Entry to this area may be affected when remedial actions are taking place. See Section 2-1a(2)(c) for a description of changes to this area during remedial actions.

Access to SWSA 6 (Buildings 7842 and 7878) is through a secure entrance point (i.e., the badge reader security gate). The entrance point is locked at all times when authorized

personnel are not entering or leaving the area. The buildings are locked at all times when authorized personnel are not present. Access is not allowed on weekends and during holidays except during specially approved operating hours and by prearranged approval. Changes in entry control may be required when remedial actions are taking place in this area. See Section 2-1a(2)(c) for a description of changes to this area during remedial actions.

Access to SWSA 7 (Buildings 7572, 7574, 7576, 7577, and 7580 storage units) will be through secure entrance points (gates). The entrance points will be locked at all times when authorized personnel are not entering or leaving the units. The CH-TRU buildings will also be locked at all times when authorized personnel are not present. Access will not be allowed on weekends and during holidays except during specially approved operating hours and by prearranged approval.

Access to Buildings 7883 and 7884 will be through secure entrance points and will be limited to authorized personnel with keys to gates or approved badged entry. Buildings 7883 and 7884 will be locked at all times except when WO personnel are present. Only authorized personnel will have keys for entry. Additionally, personnel must pass through a security gate used to restrict access to the site where the buildings will be located. Visitors or unauthorized personnel must be escorted for entry into the units.

2-1a(2)(c) Fence Removal for Remedial Actions

To facilitate remedial actions conducted under the Comprehensive Environmental Response, Compensation, and Liability Act, several sections of security fence in SWSAs 5 and 6 have been removed. In addition, the badge reader entry gate to SWSA 6 will be left open to facilitate construction. However, the entrances to permitted units containing hazardous waste will remain locked, and requirements for entry into them will be unchanged.

Within 90 days of submittal of the RCRA closure certification for Trench 27 (scheduled to be submitted in summer 2006), the SWSA 5 security fence will be replaced; however, a portion of it will be in a slightly different location. (Trench 27 is an interim status unit not addressed in this permit; however, closure of it will be one of the last remedial actions in SWSA 5.) Ninety days are needed to allow for completion of site restoration and demobilization activities. Remedial action in SWSA 6 will accomplish final RCRA closure of all permitted and interim status units; therefore, SWSA 6 fencing will be in compliance with a post-closure permit.

2-1a(3)Warning Signs

Signs reading (in English) "Danger - Restricted Entry" or "Danger - Unauthorized Personnel Keep Out" are posted at the entrances to Buildings 7855, 7823, and 7879. The signs are

sufficient in number, located so as to be visible from all approach directions, and legible at a distance of 25 ft.

Signs reading (in English) "Danger - Restricted Entry" or "Danger - Unauthorized Personnel Keep Out" will be posted at the entrances to Buildings 7572, 7574, 7576, 7577, and 7580. The signs will be sufficient in number, located so as to be highly visible from all approach directions, and legible at a distance of 25 ft.

Signs bearing the legend "Danger - Unauthorized Personnel Keep Out," that are legible from a distance of 25 ft, will be posted at the entrances to Buildings 7883 and 7884.

No languages other than English are necessary for signs at ORNL. Existing signs with a legend other than "Danger - Unauthorized Personnel Keep Out" may be used if the legend on the sign indicates that only authorized personnel are allowed to enter and that entry into the active portion can be dangerous. Signs will also indicate that the areas and units are radiological areas.

Warning signs on the WPF Unit will be displayed prominently at each building entrance to an active portion of the Unit and on the Facility perimeter fencing. Signs will be placed in sufficient numbers so that they are visible from any approaches to the Unit. The signs will contain the phrase "Danger - Unauthorized Personnel Keep Out", and will be legible and visible from a distance of 25 ft.

2-1b Waiver

In consideration of the following regulations, TDEC approves ORNL's requested waiver for the existing and proposed RH-TRU, CH-TRU, and waste examination units for: 40 CFR 264.32(c) as referenced by TN Rule 1200-1-11.06(3) - All facilities must be equipped with the following, unless it can be demonstrated to the Regional Administrator that none of the hazards posed by waste handled at the facility could require a particular kind of equipment specified below:

Portable fire extinguishers, fire control equipment (including special extinguishing equipment, such as that using foam, inert gas, or dry chemicals), spill control equipment, and decontamination equipment.

The request for a waiver is based on consideration of radiation levels in these units. For health and safety reasons, most of the safety and emergency equipment (including respirators, protective suits, etc.) are maintained at nearby buildings. Storage of these items on-site at the RH-TRU, CH-TRU, and waste examination units could result in radiological contamination prior to use. Inspections of these items are conducted by personnel responsible for the buildings in

which they are contained. Limited emergency supplies are, or will be, located at other hazardous waste storage units at ORNL. General supplies of emergency response equipment are maintained at nearby ORNL locations (in particular, Building 7878A for TRU operations located in SWSA 6 and Building 7831 for TRU operations in SWSA 5).

The CH-TRU units (except Building 7823) are, or will be, equipped with a ventilation system, a communication systems (phones or operators' two-way radios), and fire extinguishers in (or near) the building. Periodic inspections (approximately annually) of these items are conducted by the personnel responsible for those systems. Inspection logs for those items maintained by staff associated with the RH-TRU, CH-TRU, and waste examination units are kept in the WO offices.

The WPF units (except for the CHSA, DAC, and CSA) are equipped with a ventilation system, a communication system (phones or operators' two-way radios), a fire suppression system, and fire extinguishers in (or near) the units. The CHSA, DAC, and CSA are equipped with a communication system (phones or operators' two-way radios) and fire extinguishers in (or near) the units. Periodic inspections (approximately annually) of these items will be conducted by the personnel responsible for those systems. Inspection records for these items will be kept at the WPF.

ATTACHMENT 3 INSPECTION

INSPECTION SCHEDULE

3-1a General Inspection Requirements

In consideration of the following regulations, TDEC approves ORNL's requested waiver for the existing and proposed RH-TRU waste storage units for: 40 CFR 264.35 as referenced by TN Rule 1200-1-11-.06(3) - The owner or operator must maintain aisle space to allow the unobstructed movement of personnel, fire protection equipment, spill control equipment, and decontamination equipment to any area of facility operation in an emergency, *unless* it can be demonstrated to the Regional Administrator that aisle space is not needed for any of these purposes.

The request for waiver is based on the fact that access to the containers is not allowed; the stored wastes are mostly solids, have a low flammability potential, and are radioactive; and the design of the units is such that aisle space is not warranted.

Once the concrete casks are placed in the RH-TRU units, personnel access is not allowed because of high radiation levels and the need to keep radiation exposures to ALARA levels.

In the RH-TRU units, as each bay is filled to capacity, the bay is sealed to minimize radiation releases and, as such, prevents access by any personnel; therefore no aisle space is needed. Since the stored wastes are primarily solids, have multiple layers of containment, and are not flammable, it is unlikely that emergencies will arise requiring fire protection equipment or spill control equipment to be used inside the units.

In consideration of the following regulations, TDEC approves ORNL's requested waiver for the existing and proposed RH-TRU, CH-TRU, and waste examination units for:

40 CFR 264.174 as referenced by TN Rule 1200-11-.06(9) - At least weekly, the owner or operator must inspect areas where containers are stored, looking for leaking containers and for deterioration of containers and the containment system caused by corrosion or other factors.

The request for a waiver is based on the fact that full compliance with the requirement for weekly inspections of the RH-TRU, CH-TRU, and high-activity mixed LLW containers and container storage areas would result in violation of the ALARA policies (see Attachment 1-1). Because of the high radiation levels experienced outside the containers stored, or to be stored, in the units included in this document personnel activities in these buildings are restricted.

Such a waiver has been granted by TDEC for monthly inspections of the CH-TRU wastes stored in Building 7934 which is covered in ORNL's permit TNHW-010A.

Inspections of the RH-TRU, the CH-TRU, and/or high-activity mixed LLW stored, or to be stored, in any of these units and associated equipment are proposed to be limited due to the operation and design of these units, the low probability of release of hazardous and/or radioactive wastes, and most importantly, the known radiological hazards posed by the wastes.

The RH-TRU, and/or high-activity mixed LLW stored, or to be stored, in the RH-TRU units are, or will be, primarily solids. Since the wastes have multiple levels of containment (see Attachment 7) and are not subject to outside weather conditions, the probability of a release is extremely low. The hazard of the RCRA component is minor compared to the hazard associated with the radioactive component. The threat to human health and the environment resulting from releases from these units is primarily radiological.

The CH-TRU and/or high-activity mixed LLW stored, or to be stored, in the CH-TRU units are both solids and liquids (small volumes). Since the wastes have two levels of containment (see Attachment 7), are not subject to outside weather conditions, and are largely non-corrosive types, the probability of a release is extremely low. The hazard of the RCRA component is relatively minor compared to the hazard associated with the radioactive component. The threat to human health and the environment resulting from releases from these units is primarily radiological.

As a result of the radiation hazards, the RCRA-mandated inspections for the TRU, and high-activity mixed LLW stored, or to be stored, in the units included in this document are, or will be, performed by WO personnel for equipment malfunction, security, the condition and placement of signs, structural deterioration, operational errors, and discharges that could cause or lead to releases of radioactive and/or hazardous waste to the environment and/or threaten human health. The proposed schedules for facility inspections are identified in Tables 3-1 and 3-2¹.

Empty units, or empty portions of units (i.e., empty cells/bays), will not be inspected, provided a standby inspection is performed after all containers of hazardous/mixed waste are removed. A restart inspection will be performed before restoring hazardous/mixed waste in any unit (or portion of units) that have been in standby mode (see Table 3-7). The normal inspection frequency, as indicated in Appendix 3-1, will continue until the standby inspection is performed.

¹ Not all items on the examples of general inspection schedules are applicable for each unit. Actual inspections for a given unit are based on the items, equipment, and operations appropriate for that unit.

The standby inspection log will verify no waste is present and will include the inspector's name and title, date and time of inspection, types of problems encountered, observations, and date and nature of repairs and remedial actions. A start-up inspection will be performed prior to placing waste in a storage unit, or portion of a unit, that has been in standby mode. A start-up inspection log will verify the unit is acceptable for storing waste and will include the inspector's name and title, date and time of inspection, types of problems encountered, observations, date and nature of repairs and remedial actions. All significant problems noted during the start-up inspection will be corrected prior to storing waste.

Activities in these units are, or will be, conducted in accordance with ALARA objectives. Monitoring for releases consists of the following measures:

- RP checks throughout the waste handling process (release of radionuclides provides an easily detectable indication of the loss of containment);
- RP checks (contamination smears and direct radiation surveys) of the open bays in the RH-TRU units and the interior of the CH-TRU units;
- monitoring, testing, and disposing of any liquids collected in storage unit sumps; and
- sampling of the atmosphere of the units if deemed necessary.

The frequency of inspection for each activity is indicated in Tables 3-1 and 3-2. Daily inspections are interpreted as being performed during use, i.e., at times when wastes are being moved and, therefore, subject to spills. RCRA inspections of the TRU, and high-activity mixed LLW are conducted during use and are directed primarily at checking for radioactive hazards and integrity of the containers of newly generated wastes. The integrity of the closed cells in the RH-TRU units and the casks they contain are monitored indirectly through checks of the units' external sumps. In the open cells of the RH-TRU units, RP technicians take contamination smears and direct radiation surveys to detect the loss of radioactive containment of the stored casks. In the CH-TRU units, RP technicians take the above mentioned readings when the drums are moved to detect the loss of radioactive containment of the containers. The resulting information is maintained in a computer database by the RP personnel. High-activity mixed LLW containers that are stored in the same storage areas as the TRU wastes are inspected on the same schedule as the TRU wastes. CH-TRU containers are inspected by WO staff monthly. Results of those inspections are maintained on inspection log sheets.

RH-TRU Units. Regularly scheduled inspections of the RH-TRU units are performed by WO personnel. Inspections are provided for equipment malfunctions, structural deterioration, operational errors, and discharges that could lead to releases of radioactive and/or hazardous waste to the environment and/or threaten human health. The schedule and list of specific operating equipment, structural components, and safety and security equipment to be inspected are identified in Table 3-1.

The RH-TRU units primarily store, or will primarily store, RH-TRU wastes contaminated with radionuclides that result in a surface radiation dose rate of > 200 mrem/h. Some of the casks contain, or will contain, RCRA metals, primarily lead or mercury, and as a result will be mixed wastes (both hazardous and radioactive).

Compliance with DOE and applicable site policies, procedures, and orders, as well as the AEA governing radioactive waste management, accomplishes a level of environmental protection greater than that required under RCRA for hazardous waste management. Full compliance with RCRA regulations for RH-TRU unit inspections would result in violation of a basic tenet of radioactive waste management, that of keeping radiation exposures ALARA. Because of the high radiation levels experienced outside of the storage containers, personnel activities in the storage building are restricted. In view of the existing orders, policies, and procedures aimed at minimizing risks to human health and the environment, TDEC approves ORNL's requested waiver from the RCRA requirements for hazardous waste labeling of containers, aisle space, weekly inspections of containers, and provision of spill and emergency equipment on-site at the RH-TRU units.

Communication and alarm systems are tested approximately annually by the personnel responsible for those systems and, therefore, are not included here.

Inspections of the RH-TRU units and associated equipment are limited due to the operation and design of the RH-TRU units, the low probability of release of hazardous or radioactive wastes, and most importantly, the radiological hazards posed by the wastes.

Unit Design and Operations. All RH-TRU units are, or will be, constructed of cement block on a reinforced concrete slab. Buildings 7855 and 7883 are, or will be, divided into four bays, and Building 7884 will be divided into six bays. In Building 7855, three of the bays are full and have been sealed with reinforced cement block filled with concrete; the fourth bay continues to receive wastes at a rate of one cask every three to five months. Each bay contains a drain system for collection of any groundwater that might seep into the unit (refer to Attachment 7-1). The drain system discharges to sampling stations contained inside a sump located near the unit's entrance. Casks are placed on steel pallets to ensure that they do not come in contact with any accumulated liquids. Cask design and waste container design are addressed in Attachment 7.

Probability of a Release. The RH-TRU wastes stored in the RH-TRU units are primarily solids (see Attachment 1). Since the wastes have two or three levels of containment (refer to Attachment 7) and are not subject to outside weather conditions, the probability of a release is extremely low. The hazard of the RCRA component is minor compared to the hazard of the radioactive component. The threat to human health and the environment resulting from releases from these units is primarily radiological.

Table 3-1. General inspection schedule for RH-TRU and/or Mixed LLW to be stored in RH-TRU units

Area/equipment	Specific item	Frequency of inspection
Building/area security	Warning signs in place and in good condition; security fence and gates intact; radiation signs intact	Weekly
Base/foundation ¹	Cracks, uneven settlement, wet spot, erosion	Monthly and daily during use ²
Loading/unloading areas	Spills, leaks, or unnecessary items	Monthly and daily during use ²
Exterior sump	Cracks, spalling, uneven settlement, wet spot, liquid present	Weekly
Containers (RH-TRU and/or high-activity mixed LLW)	Cracks, deterioration, improper seals or labels	Daily during use ²
Containers (low-activity mixed LLW)	Cracks, deterioration, improper seals or labels	Weekly and daily during use ²
Emergency and safety equipment ³ : absorbent spill kit gloves	Spill control equipment tamper seal intact	Weekly; monthly for LLW
	Complete inventory, verification of material condition	Annually

¹ Applies to RH-TRU storage areas where waste is accessible (i.e., in open cells only).

² “Daily during use” is defined as when wastes are being moved and, therefore, subject to spills.

³ The emergency equipment not located in the RH-TRU waste storage units will be checked as part of the scheduled inspections for the buildings/units in which they are located.

As a result of the above, activities in the RH-TRU units are, or will be, conducted in accordance with ALARA objectives. Monitoring for releases consists of RP checks throughout the waste handling process (including contamination smears and direct radiation surveys); monitoring, testing, and disposing of any liquids collected in storage unit sumps; and sampling of the atmosphere of the unit if deemed necessary.

For health and safety reasons, most of the safety and emergency equipment is maintained at nearby facilities (see Attachment 5). Storage of these items on-site at the RH-TRU units could result in radiological contamination prior to use. Inspections of these items are conducted by the personnel responsible for the buildings/units in which they are located. Inspection logs for those items maintained by staff associated with the RH-TRU wastes are kept in the WO offices. Limited emergency supplies are, or will be, located at other hazardous waste storage units at ORNL. General supplies of emergency response equipment are maintained at nearby ORNL locations (in particular, Building 7878A for TRU operations in SWSA 6 and Building 7831 for TRU operations in SWSA 5).

As a result of radiation hazards associated with the RH-TRU wastes, the RCRA-mandated inspections for the RH-TRU storage units are primarily for structural deterioration, equipment malfunction, security, and the condition and placement of signs (see Table 3-1).

The RH-TRU units (or unused bays in those units) may at times be used to store low-activity mixed LLW. Those wastes and storage areas will be inspected according to the schedule provided in Table 3-1. Inspection records will be maintained on log sheets and will be stored in the WO offices.

CH-TRU Units. Regularly scheduled inspections of the CH-TRU units are performed by WO personnel for equipment malfunctions, structural deterioration, operational errors, and discharges that could cause or lead to releases of radioactive and/or hazardous waste to the environment and/or threaten human health. The schedule and list of specific operating equipment, structural components, and safety and security equipment to be inspected are identified in Table 3-2.

The CH-TRU units, or will store, wastes contaminated with radionuclides and have a surface radiation dose rate of ≤ 200 mrem/h. The CH-TRU waste may contain RCRA metals, primarily lead and mercury; however, other potential RCRA wastes, including sludges, aerosol cans, gas cylinders, and/or liquids (believed to be washwater) may also be present.

Compliance with DOE and applicable site policies, procedures, and orders, as well as the AEA governing radioactive waste management, accomplishes a level of environmental protection greater than that required under RCRA for hazardous waste management (refer to Attachment 7). Full compliance with RCRA regulations for unit inspections at the CH-TRU and waste examination units would result in violation of a basic tenet of radioactive waste management, that of keeping radiation exposures ALARA. In view of the existing orders, policies, and procedures aimed at minimizing exposure risks, TDEC approves ORNL's requested waiver from the RCRA requirements for weekly inspection of the CH-TRU containers.

Inspections of the CH-TRU and high-activity mixed LLW in the CH-TRU units associated equipment are proposed to be limited due to the operation and design of the units, the low probability of release of hazardous or radioactive wastes, and, most importantly, the potential radiological hazards posed by the wastes.

The CH-TRU units may be used to store low-activity mixed LLW. The low-activity mixed LLW may include, but is not limited to, spill residues, waste oil, wastewater constituents, and/or solvent wipes. Low-activity mixed LLW will be inspected according to the schedule presented in Table 3-2. Inspection logs will be maintained in the WO offices. Scheduled waste container inspections will not be done when no RCRA waste is present in the unit.

Unit Design and Operation: The CH-TRU and waste examination units (except Buildings 7823 and 7842) are, or will be, constructed of metal walls and roof on a reinforced concrete slab with a 3-in. dike around the inside perimeter of the floor. Building 7823 uses portable dikes, self-contained pallets, or waste overpack containers as allowed by Standard Condition III.F.2.(f). Buildings 7878, 7879, and 7574 have sloped floors. Building 7572 has two sumps. Building 7577 will have three storage areas and each area will have an individual sump (see engineering drawings in Appendix 7-1). The sumps have, or will have, a metal grate and are, or will be, visually inspected for liquids. The sumps are not required to meet permit requirements and may be filled to meet future nuclear criticality safety requirements. Drums will be placed on wood or metal pallets. Metal boxes may be stacked three high.

Probability of a Release: The CH-TRU and high-activity mixed LLW stored in CH-TRU units are both solids and liquids (small volumes; see Attachment 1). Since the wastes have two levels of containment, are not subject to outside weather conditions, and are largely noncorrosive types, the probability of a release is extremely low. For the CH-TRU and high-activity mixed LLW, the hazard of the RCRA component is relatively minor compared to the hazard of the radioactive component. The threat to human health and the environment resulting from releases from these waste containers is primarily radiological.

Activities in the CH-TRU units are, or will be, conducted in accordance with ALARA objectives. Monitoring for releases consists of RP checks throughout the waste handling process (including contamination smears and direct radiation surveys); monitoring, testing, and disposing of any liquids collected in storage unit sumps; and sampling of the atmosphere of the unit if deemed necessary.

For health and safety reasons, most of the safety and emergency equipment is maintained at nearby units (see Attachment 5). Storage of these items on-site at the CH-TRU units could result in radiological contamination prior to use. However, the CH-TRU buildings (except Building 7823) are, or will be, equipped with a ventilation system, a communication system (phones or operator's two-way radios), and fire extinguishers in (or near) the building.

**Table 3-2. General inspection schedule for CH-TRU
and/or mixed LLW to be stored in CH-TRU units**

Area/equipment	Specific item	Frequency of inspection
Building/area security	Warning signs in place and in good condition; security fence and gates intact; radiation signs intact	Weekly
Base/foundation	Cracks, uneven settlement, wet spots, erosion	Monthly and daily during use ¹
Loading/unloading areas	Spills, leaks, or unnecessary items	Daily during use ¹
Sump (where applicable)	Cracks, spalling, uneven settlement, wet spots, liquid present	Monthly
Containers (CH-TRU and/or high-activity mixed LLW)	Integrity (leaking, bulging, heavy corrosion, etc.), incomplete or improper labeling	Monthly and daily during use ¹
Containers (low-activity mixed LLW)	Integrity (leaking, bulging, heavy corrosion, etc.), incomplete or improper labeling	Weekly and daily during use ¹
Secondary containment	Cracks, wet spots, liquid present	Monthly
Emergency and safety equipment ² absorbent spill kit gloves	Spill control equipment tamper seal intact	Weekly; weekly for LLW
	Complete inventory, verification of material condition	Annually

¹ "Daily during use" is defined as when wastes are being moved and, therefore, subject to spills.

² The emergency equipment not located in the CH-TRU waste storage units will be checked as part of the scheduled inspections for the buildings/units in which they are located.

Periodic inspections (approximately annually) of these items are conducted by the personnel responsible for the systems. Inspection logs for those items maintained by staff associated with the CH-TRU units are kept in the WO offices.

As a result of the radiation hazards, the RCRA-mandated inspections for the CH-TRU and high-activity mixed LLW in the CH-TRU units are primarily for structural deterioration, equipment malfunction, security, and the condition and placement of signs (see Table 3-2).

Low-activity Mixed LLW. Any of the RH-TRU or CH-TRU storage units may store low-activity mixed LLW. Regularly scheduled inspections of the low-activity mixed LLW will be performed by WO personnel. Inspections of the low-activity mixed LLW are provided for equipment malfunctions, structural deterioration, operational errors, and discharges that could lead to releases of radioactive and/or hazardous waste to the environment and/or threaten human health. The inspection schedule for low-activity mixed LLW in these units are identified in Tables 3-1 and 3-2.

TRU Waste Processing Facility (WPF) All RH-TRU, CH-TRU and mixed LLW storage units at the facility will have regularly scheduled inspections performed by Operations personnel. The inspection schedules for the facility are identified in Tables 3-1 and 3-2. Examples of inspection log sheets used to document results for these inspections are included in Tables 3-8 through 3-13.

3-1a(1)Types of Problems

Tables 3-3 through 3-14 show the schedules which are used as the basis for RCRA-mandated inspections of the units covered in this document and the potential problem areas examined during each inspection. The inspected items listed in the tables are important in their role of preventing, detecting, or responding to environmental and/or human health hazards in each of the units; however, not all items listed in these examples are applicable for all units. Actual inspections for a given unit are based on the items, equipment, and operations appropriate for that unit.

3-1a(2)Frequency of Inspection

The frequency of inspection for each activity is indicated in Tables 3-1 and 3-2. Daily inspections are interpreted as being performed during use (i.e., at times when wastes are being moved and, therefore, subject to spills). For reasons described in Section 3-1a, TDEC approves ORNL's requested waiver from portions of the weekly inspection requirements for containers [40 CFR 264.174 and TN Rule 1200-1-11-.05(9)(a)1] on the basis of ALARA standards adopted by DOE in accordance with the AEA for RH-TRU, CH-TRU, and high-activity

mixed LLW (see 52 FR 15940, May 1, 1987). Regularly scheduled inspections of the low-activity mixed LLW stored in any of these units will be performed according to the schedule in Tables 3-1 and 3-2. A waiver is not requested from the weekly inspection requirements for the containers of low-activity mixed LLW.

WPF

A waiver is not requested from the weekly inspections for the CH wastes to be managed at this facility.

**Table 3-3. Examples of inspection log sheets¹
for RH-TRU units: Weekly**

Unit Name: _____

Inspector: _____ Date: _____ Time: _____

Activity to be Inspected	Potential Problems	Inspection Results		Solution/Remedy and Date Deficiency Corrected
		OK, no problem	Problem	
Building/area security	Warning signs missing or illegible; security fence and gates unlocked;			
Exterior sump	Cracks, spilling, uneven settlement, wet spot, liquid present ²			
Exterior radiation warning signs/ropes	Signs/ropes in place and in good condition			
Emergency or safety equipment ³ : spill kit	Tamper seal intact			

¹ Equivalent log sheets may be used.

² Pump once sufficient volume is present (in excess of 6 inches). Liquid should be sampled when volume is sufficient for sampling and analysis requirements.

³ Emergency or safety equipment will have a complete inventory performed annually.

**Table 3-3 (Continued). Examples of inspection log sheets¹
for RH-TRU units: Daily²**

Unit Name: _____

Inspector _____ Date: _____ Time: _____

Activity to be Inspected	Potential Problems	Inspection Results		Solution/Remedy and Date Deficiency Corrected
		OK, no problem	Problem	
Loading/unloading areas	Spills, leaks, unnecessary items			
Base/foundation	Cracks, uneven settlement, wet spot, erosion			
Containers	Cracks, deterioration, improper seals			

¹ Equivalent log sheets may be used.

² "Daily during use" is defined as when wastes are being moved and, therefore, subject to spills.

**Table 3-3 (Continued). Examples of inspection log sheets¹
for RH-TRU and/or high-activity mixed LLW in RH-TRU units: Monthly²**

Unit Name: _____

Inspector _____ Date: _____ Time: _____

Activity to be Inspected	Potential Problems	Inspection Results		Solution/Remedy and Date Deficiency Corrected
		OK, no problem	Problem	
Containers	Overall integrity (corrosion, structural defects), visible leaks, significant deterioration			

¹ Equivalent log sheets may be used.

² Conducted at the bay entrance.

**Table 3-4. Examples of inspection log sheets¹
for CH-TRU and/or high-activity mixed LLW in CH-TRU units: Monthly**

Unit Name: _____

Inspector _____ Date: _____ Time: _____

Activity to be Inspected	Potential Problems	Inspection Results		Solution/Remedy and Date Deficiency Corrected
		OK, no Problem	Problem	
Containers	Overall integrity (corrosion, structural defects), visible leaks, significant deterioration, labels visible from aisle, incomplete or improper labeling; aisle spacing, height			
Sump ²	Cracks, spilling, liquids, etc.			
Secondary containment	Spills, leaks, liquids, etc.			

¹ Equivalent log sheets may be used.

² Where present.

**Table 3-4 (Continued). Examples of inspection log sheets¹
for CH-TRU units: Weekly**

Unit Name: _____

Inspector _____ Date: _____ Time: _____

Activity to be inspected	Potential Problems	Inspection Results		Solution/Remedy and Date Deficiency Corrected
		OK, no problem	Problem	
Building/area security; door locks	Warning signs missing or illegible; security fence and gates intact; locks broken, corroded			
Radiation warning signs/ropes	Signs/ropes in place and in good condition			
Emergency and safety equipment ² : spill kit	Tamper seal intact			

¹ Equivalent log sheets may be used.

² Emergency or safety equipment will have a complete inventory performed annually.

**Table 3-4 (Continued). Examples of inspection log sheets¹
for CH-TRU wastes in CH-TRU units: Daily²**

Unit Name: _____

Inspector _____ Date: _____ Time: _____

Activity to be Inspected	Potential Problems	Inspection Results		Solution/Remedy and Date Deficiency Corrected
		OK, no problem	Problem	
Loading/unloading areas	Spills, leaks, unnecessary items			
Base/foundation	Cracks, uneven settlement, wet spots, erosion			
Containers	Cracks, deterioration, improper seals or labels			

¹ Equivalent log sheets may be used.

² "Daily during use" is defined as when wastes are being moved and, therefore, subject to spills.

Table 3-5. Examples of inspection log sheets¹ for low-activity mixed LLW in TRU units: Weekly

Unit Name: _____

Inspector _____ Date: _____ Time: _____

Activity to be Inspected	Potential Problems	Inspection Results		Solution/Remedy and Date Deficiency Corrected
		OK, no problem	Problem	
Building security	Warning signs in place, all entrance locks intact			
Port-A-Berm or other diking	No leaks, berm not inflated to full capacity, cracks			
Portable eye wash (where present)	Not in place and fully charged; change solution			
Container placement and aisle space	Incorrect hazard class storage, inadequate aisle space, labels not visible from aisle			
Container labeling	Incomplete and improper identification			
Container condition	Corrosion, leaks, structural defects			
Segregation/storage of incompatible waste	Storage of incompatible waste in same area, improper labeling			
Loading/unloading areas	Spills, spill residue to remove			
Dike area	Cracks, wet spots, liquid present			

¹ Equivalent log sheets may be used.

Table 3-5 (Continued). Examples of inspection log sheets¹ for low-activity mixed LLW: Monthly

Unit Name: _____

Inspector _____ Date: _____ Time: _____

Activity to be inspected	Potential Problems	Inspection Results		Solution/Remedy and Date Deficiency Corrected
		OK, no problem	Problem	
Emergency generator (where present)	Run for 10 minutes, check fuel and oil level			
Spill kit	Clay, absorbent pads, vermiculite, pigs			

¹ Equivalent log sheets may be used.

Table 3-7 Example of standby inspection log sheet¹

Inspector: _____ Date: _____ Time: _____

Inspection Frequency: When all hazardous/mixed waste has been removed and also prior to restarting waste storage

Unit Number: _____ Cell/Bay Number (if applicable): _____

Activity Inspected	Potential Problems	Check if Applicable	Deficiency to be Remedied	Date Deficiency Remedied
Container Storage Area				
Sump	Cracks, deterioration, liquid present, waste residue present			
Loading/Unloading Areas	Spills, unnecessary items, chemical residue present			
Storage Area	Waste containers or waste residue present			
Equipment	Waste residue or liquid present			
Security	Warning signs not in place or illegible, door locks missing			

¹ Equivalent log sheets may be used.

Table 3-8: WPF Project Weekly RCRA Waste Container Storage Area Inspections

Name: _____ Signature: _____ Date: _____

Location: WPF-1(CHSA) WPF-2(2nd Floor WPF) WPF-3(DAC) WPF-4(1st Floor WPF) WPF-5(CSA)
 WPF-6 (CHMB) Other: _____

Inspection Item	Y/N/NA	Details of Inspection, as needed. If any answer is NO, a detailed description of the deficiency must be included.
Are containers in good condition, i.e., no signs of leakage, deterioration, significant rusting, etc.?		
Are containers closed as required?		
Are containers labeled as "Hazardous Waste" with accumulation start dates, and are the labels and associated information legible?		
Are the aisle ways unobstructed for container movement and emergency response?		
Are the floors in the storage areas free of cracks or gaps?		
If there are liquids in the storage area are they being stored in secondary containment? Is the secondary containment in good condition and is there adequate capacity for the amount of liquid?		
Are there signs posted at each entrance to an active portion of the Facility with the words "Danger-Unauthorized Personnel Keep Out"?		
Spill Kits are located in area and contain required supplies?		

Corrective Actions

Description of CA, including date and number of corrective action request and date of completion, use continuation sheet as necessary.

**Table 3-9: WPF Project Weekly RCRA Inspections
Items**

Name: _____ Signature: _____

Date: _____

Inspection Item	Y/N	Details of Inspection, as needed. If any answer is NO, a detailed description of the deficiency must be included.
Are pressure sensors on HEPA filters and ventilation system operable?		
Is the emergency shower and eyewash in good condition, i.e., no leaking, draining or inadequate pressure?		
Is the telephone and intercom system operable?		
Are warning signs on perimeter fence legible?		
Are the facility fences, gates, and locks in good condition, i.e., no corrosion or damage?		

Corrective Actions

Description of CA, including date and number of corrective action request and date of completion, use continuation sheet as necessary.

Table 3-10: WPF Project Monthly RCRA Inspections Items

Name: _____ Signature: _____

Date: _____

Inspection Item	Y/N	Details of Inspection, as needed. If any answer is NO, a detailed description of the deficiency must be included.
Are the weigh scales operable?		
Are first aid kits available, in good condition and fully stocked?		
Are empty drums, containers, or overpacks available and in good condition?		
Is decontamination equipment (scrub brushes, buckets, soap, etc.) available and in good condition?		
Are fire extinguishers properly charged?		
Are smoke detectors operable?		
Are area lights operable, i.e., system is operable and no burned-out bulbs?		

Corrective Actions

Description of CA, including date and number of corrective action request and date of completion, use continuation sheet as necessary.

Table 3-11: WPF Project Quarterly RCRA Inspections Items

Name: _____ Signature: _____

Date: _____

Inspection Item	Y/N	Details of Inspection, as needed. If any answer is NO, a detailed description of the deficiency must be included.
Is the emergency lighting operable, i.e., no battery failure or burned-out bulbs?		

Corrective Actions

Description of CA, including date and number of corrective action request and date of completion, use continuation sheet as necessary.

Table 3-12: WPF Project Semi-Annual RCRA Inspections Items

Name: _____ Signature: _____

Date: _____

Inspection Item	Y/N	Details of Inspection, as needed. If any answer is NO, a detailed description of the deficiency must be included.
Has the fire alarm system been tested/inspected to demonstrate it is functioning properly?		

Corrective Actions

Description of CA, including date and number of corrective action request and date of completion, use continuation sheet as necessary.

Table 3-13: WPF Project Annual RCRA Inspections Items

Name: _____ Signature: _____

Date: _____

Inspection Item	Y/N	Details of Inspection, as needed. If any answer is NO, a detailed description of the deficiency must be included.
Has the sprinkler system been tested/inspected to demonstrate it is in good condition, i.e., no leaking, drainage, or inadequate pressure?		

Corrective Actions

Description of CA, including date and number of corrective action request and date of completion, use continuation sheet as necessary.

Table 3-14: Macroencapsulation Treatment Unit Inspection Items

Name of Individual Performing Treatment: _____
 Signature: _____ Time of Treatment: _____
 Date: _____ Location: _____

Inspection Item	Before Treatment Y/N	After Treatment Y/N	Details of Inspection, as needed. A detailed description of the deficiency must be included.
Type and size of container			
Waste container, lid, and polyethylene liner in good condition?			
Waste characterization correct?			
Appropriate EPA codes assigned to waste?			
Is non-compatible waste present in the container?			
Lid installed correctly?			
The macroencapsulation and compression weight appropriately connected to the lid and started?			
Verify that the welder voltage stabilizes within the anticipated range of ¹ : 24-27 volts for 110 gallon drum 74-79 volts for six pack box			
Green light on the Control Unit indicates process complete?			
Power disconnected and compression weight removed from the lid?			
Any spills or releases observed?			
Any unanticipated reactions?			
Waste appropriately treated and packaged? New Container # _____			
Is waste container appropriately labeled?			

WASTE CONTAINER #'S TREATED

¹ Verify the voltage requirements listed in Macro-Encapsulation Procedure, T-CH-FW-P-OP-034.

Table 3-14: Macroencapsulation Treatment Unit Inspection Items (cont'd)

Corrective Actions

Description of CA, including date and number of corrective action request and date of completion, use continuation sheet as necessary.

TABLE 3-15: Miscellaneous Treatment Inspection Items

Name of Individual Performing Treatment: _____
 Signature: _____ Time of Treatment: _____
 Date: _____ Location: _____

Inspection Item	Before Treatment Y/N	After Treatment Y/N	Size, Amount, Type
Does the liquid/mercury exceed maximum treatment quantity? If "yes" divide liquid/mercury as appropriate.			
Size of container(s)			
Appropriate EPA codes assigned to waste?			
Is non-compatible waste present in the treatment unit?			
Are secondary containment pans present and in good condition?			
Is the appropriate stabilization agent available for the waste to be treated?			
Amount of stabilization agent required or liquid/mercury? Agent _____ Liquid/Mercury _____			
Is there liquid/mercury remaining after blending with agent? (visual inspection) If "yes" re-treat.			
Any spills or releases observed?			
Any unanticipated reactions?			
Waste appropriately treated and packaged? Container # _____			
Is waste container appropriately labeled?			
Secondary containment pan wiped clean after use?			

Corrective Actions

Description of CA, including date and number of corrective action request and date of completion, use continuation sheet as necessary.

Performer: _____
 Print Name Sign Name Date

Reviewer: _____
 Print Name Sign Name Date

3-1b Specific Process Inspection Requirements

Inspections of the units covered in this document are conducted according to the inspection logs in Tables 3-3 through 3-14. Results of each inspection are recorded on the inspection log sheets. Information requested on the log sheets includes the inspector's name, date and time of inspection, item of inspection, types of problems encountered, status of the item, observations, and the date and nature of repairs and remedial actions (see Tables 3-3 through 3-14 for basic format; however, actual design and/or format may vary). Typical problems that might be encountered for each item on the inspection schedule are listed on the log sheet and serve as a reminder to the inspector to ensure a thorough inspection. The inspector is required to check the status of each item and to indicate whether its condition is acceptable or unacceptable. If the status of a particular item is unacceptable, appropriate and complete information concerning the problem is recorded, including date and nature of repairs and remedial actions taken. Evaluation and/or correction of unacceptable items will be initiated immediately, if possible. The evaluation will determine whether or not repairs/corrections must be initiated within 24 h.

3-1b(1) Container Inspection

RCRA inspections of the TRU and/or high-activity mixed LLW are conducted during use¹ and are directed primarily at checking for radioactive hazards and integrity of the containers of newly generated wastes. The integrity of the closed cells in the RH-TRU units and the casks they contain is monitored indirectly via checks of the external sumps of the buildings. In the RH-TRU units, RP technicians take contamination smears and direct radiation surveys periodically to detect the loss of radioactive containment of the stored casks. In the CH-TRU units, RP technicians take these readings when the drums are moved to detect the loss of radioactive containment of the containers. The resulting information is maintained in a computer database by the RP personnel. Low-activity mixed LLW containers are inspected at least weekly. Container inspections for the Class III/IV waste storage units will be limited to times when wastes are being moved. CH-TRU containers are inspected by WM staff monthly. Inspections of waste containers is not done if no RCRA waste is present in the unit. Results of those inspections are maintained on inspection log sheets (see Tables 3-3 through 3-7).

3-2c Remedial Action

The WO personnel are responsible for taking preventive and/or remedial actions when inspections for the units in this document identify problems or potential problems. If an inspection and the subsequent evaluation reveal that preventive or nonemergency maintenance is required, the maintenance will be completed as soon as possible to preclude further damage and reduce the need for emergency actions.

¹ "During use" is defined as when wastes are being moved and, therefore, subject to spills.

If a hazard is imminent (or already has occurred during an inspection or between inspections), WO staff will (1) initiate remedial action within 24 h of the discovery of the problem or (2) at a minimum, evaluate the situation and determine that remedial actions will require additional time. In those cases, remedial actions will be initiated at the earliest practical time.

If an emergency occurs involving the release of hazardous or radioactive materials to the environment, efforts will be made to promptly contain and remove the hazard and subsequently decontaminate the affected area. Further details are provided in Attachment 5 of this document.

3-2d Inspection Log

RCRA inspection records are kept in inspection logs at the WO offices at ORNL or at the WPF as applicable. Inspection logs are maintained by WO personnel. Long-term storage of inspection records is provided by WO. Inspection logs are retained for at least three years on hard copy and may be stored on microfiche when space becomes limited. Information recorded includes date and time of inspection, name of inspector, notation of observations made, and date and nature of any repairs or other remedial actions.

3-3 WAIVER OF PREPAREDNESS AND PREVENTION REQUIREMENTS

3-3a Equipment Requirements

Requirements of this subpart are primarily addressed in Attachment 7, 3, and 5 of this document. WO personnel will be equipped with two-way radios during inspections and/or waste handling operations. Additional internal and external communication systems, emergency equipment, and fire control equipment are discussed in Attachment 5, Contingency Plan.

3-3b Aisle Space Requirement

For reasons defined in Section 3-1a, TDEC approves ORNL's requested waiver for the aisle space requirement [40 CFR 264.35 and TN Rule 1200-1-11-.06(3)] for the concrete casks stored in RH-TRU waste storage units. Once the containers are placed in the units, personnel access is not allowed because of high radiation levels and the need to keep exposures to ALARA levels (see discussion in Attachment 3-1a).

In the RH-TRU waste storage units, as each bay is filled to capacity, the bay is closed to prevent access by any personnel; therefore, no aisle space is needed. Since the stored wastes are primarily solids, have multiple layers of containment, and are not flammable, it is unlikely that emergencies will arise requiring fire protection equipment or spill control equipment to be used inside the buildings.

ORNL, including the WPF, does not request a waiver of the preparedness and prevention requirements for aisle space for areas containing hazardous waste in the CH-TRU or waste examination units or for the storage of low-activity LLW containing RCRA constituents in the

RH-TRU storage units. Aisle space will not be provided for solid LLW (non-hazardous). A primary aisle space of approximately 5 ft will be maintained for RCRA wastes to allow the unobstructed movement of personnel, fire protection equipment, and decontamination equipment to any area of the facility in an emergency. Secondary aisles of approximately 28 in. will be maintained for normal operations. A 28-in. aisle will allow a rolling ladder to be used to inspect the containers that are stacked three-high. Requirements of this subpart are primarily addressed in Attachment 7, 3, and 5 of this permit.

ATTACHMENT 4 PERSONNEL TRAINING

4-1 OUTLINE OF TRAINING PROGRAM

Through a number of training programs and activities, all employees involved in hazardous and/or mixed waste management activities receive environmental, safety, and health training, as well as performance-based operations training appropriate to their job functions. Objectives of the training effort are to (1) ensure employees have sufficient knowledge and skills and can demonstrate competent performance of their jobs whether they classify waste or transport hazardous wastes; (2) familiarize trainees with emergency procedures and associated communication and alarm systems; (3) ensure appropriate response to emergencies involving fires, explosions, or uncontrolled releases of hazardous substances; (4) inform employees of hazards associated with hazardous waste operations and activities and appropriate work practices to minimize those hazards; (5) provide instruction on the use of respiratory protection and other forms of personal protective equipment noting the limitations involved; (6) minimize the potential for damage or harm to the units or the environment; and (7) ensure compliance with the requirements of federal and state regulations pertaining to hazardous waste operations and management. Most of the regulatory-based training for hazardous and/or mixed waste management personnel at ORNL and the WPF is conducted under the Environmental Compliance (EC) and WO organizations. The P&E organization provides basic training for equipment operators (forklift operators, truck drivers, and laborers). The WPF receives this type of training from vendors. Because the wastes consist of both radioactive and hazardous constituents, the training at ORNL and the WPF ensures coverage of both the radioactive and the hazardous components of the waste.

4-1a Job Titles and Duties

Figure 4-1 provides the organization chart of staff involved with hazardous and/or mixed waste management operations at ORNL. Day-to-day operational and management responsibilities involving the hazardous and mixed waste storage units at ORNL rest mainly with the WO organization. The P&E organization provides support staff (laborers and truck drivers) for waste handling and transport. The EC organization provides regulatory guidance and oversight. The LSS serves as the emergency director and implements mutual aid agreements. Day-to-day operational and management responsibilities involving the hazardous and mixed waste units rest mainly with the WO organization at the WPF. Job descriptions and examples of duties for personnel that are assigned to work at the units covered by this permit are summarized in Appendix 4-1.

4-1b Training Content, Frequency, and Techniques

Training of hazardous/mixed waste management personnel concentrates on regulatory requirements (Hazardous Waste Operations Training, Hazardous Waste Operations and Emergency Response) and SOPs pertaining to the waste operation or activity (waste classification, waste handling, equipment usage, and safety; refer to Table 4-1 and Appendix 4-2). Retraining in this area focuses on changes to the operating procedures or to the regulations and is conducted as needed to meet an annual requirement (refer to Table 4-1). Hours spent in procedural and regulatory-based training are variable, depending on the job and the progress of the trainee. A minimum of 24 h of health and safety training for hazardous waste operations and activities is initially completed by hazardous/mixed waste management personnel. An 8-h annual refresher is then scheduled. Spill/emergency response training is provided to employees involved with responding to spills or other emergencies (see Section 4-1e).

Retraining is also provided as needed to correct any compliance problems that have been identified or to prevent recurrence of any significant incidents.

Training for employees involved in hazardous/mixed waste operations is conducted by use of the following methods or settings:

- (1) Classroom instruction. This method is used for presentation of fundamental and basic knowledge and may incorporate lectures, demonstrations, exercises, guided discussion, and audiovisual programs. Testing or completion of written worksheets or exercises is required for successful completion. The WPF evaluates student mastery of training material through a combination of testing, oral questioning, or management observation as applicable to the training provided.

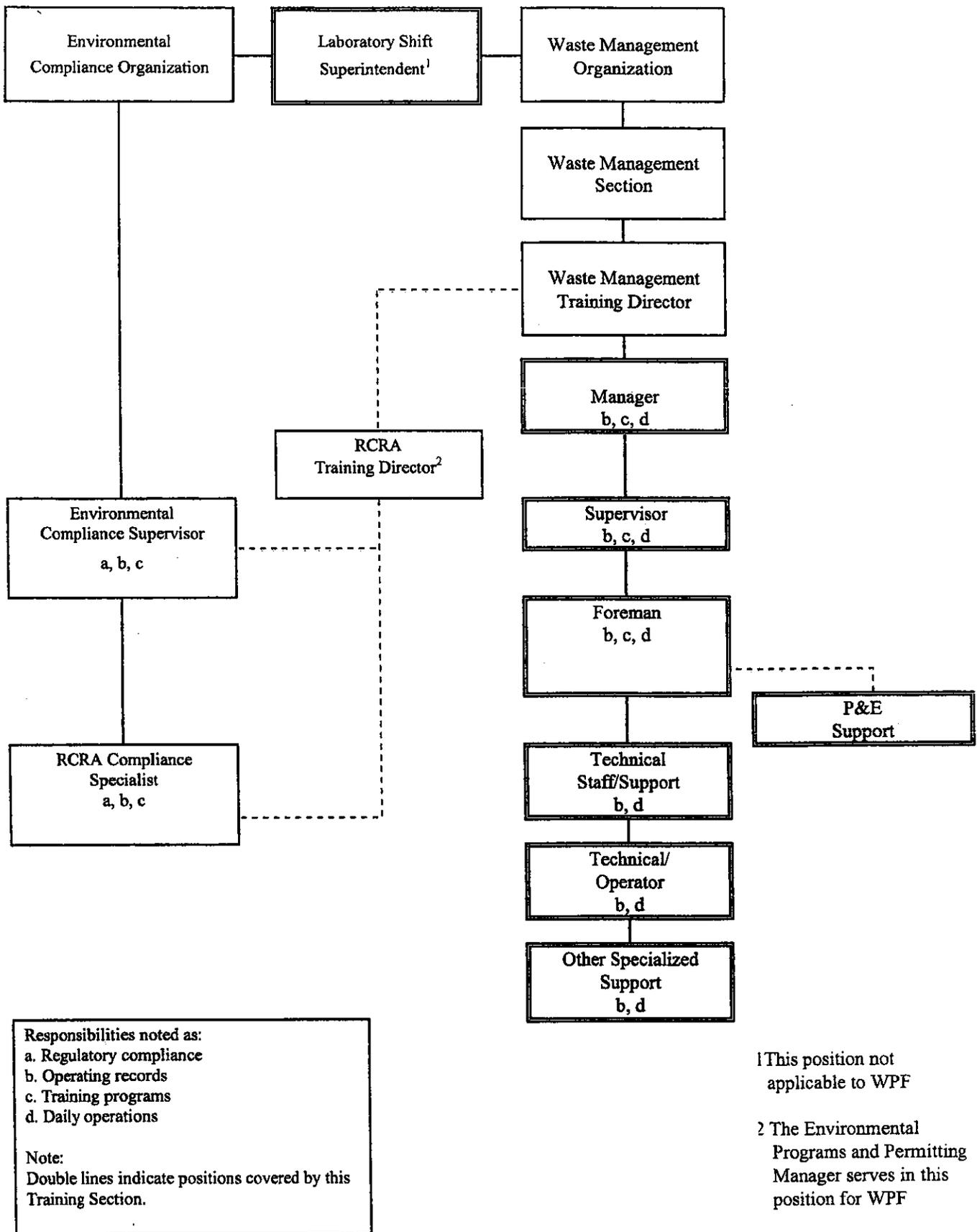


Fig. 4-1. Organization chart for personnel involved with hazardous and mixed waste management operations at ORNL and WPF

Elements of personnel training covered in classroom instruction include

- names of personnel responsible for site safety and health;
- safety, health, and other hazards;
- work practices minimizing risks from hazards;
- use and limitations of personal protective equipment;
- regulatory requirements; and
- emergency response procedures and systems.

(2) **Self-paced or computer-based study.** This form of instruction does not require the presence of an instructor at the training site and allows flexibility in implementation; however, feedback is a requirement. In initial training, self-paced or computer-based instruction is utilized in print form to familiarize the trainee with SOPs, and/or regulatory requirements, and is documented by testing with the reference source available. The WPF evaluates student mastery of training material through a combination of testing, oral questioning, or management observation as applicable to the training provided. Retraining in significant procedural regulatory changes also uses this approach. Self-paced instruction may also occasionally utilize audiovisual aids or computer-assisted instruction.

(3) **On-the-job training.** The Performance Documentation Checklist (PDC) is utilized as a performance-based training tool for job tasks that constitute major subdivisions of the job (duty area). The WPF uses on-the-job training guides and qualification cards (similar to PDCs) for Operations and Technical Staff/Support personnel. The training PDC chronologically outlines the tasks that are elements of a given job duty, such as conducting inspections, waste classifications, safety procedures, storage procedures, equipment usage, etc., and allows the supervisor and/or trainer to check and document the satisfactory performance of each task by the trainee. The trainee must demonstrate satisfactory performance of the tasks associated with a particular job duty area before being allowed to work unsupervised in that duty area. On-the-job training includes operational and job safety requirements for both WO staff and P&E laborers and equipment operators.

The training PDC is used to qualify new employees to work in a given job duty area and is used to provide retraining as procedures are newly developed or revised.

The type (title), amount, and frequency of training for each job are outlined in Tables 4-1 and 4-2. The content of each ORNL course is outlined in Appendix 4-2.

4-1c Training Director

Oversight of training for hazardous and/or mixed waste personnel is provided by the WO training director. The training director ensures that all unit personnel receive documented training in relation to their role in hazardous and/or mixed waste operations or management activities. This function requires coordination with ORNL training organizations or vendors/subcontractors providing training as well as the hazardous and/or mixed waste operations supervision.

In general, the training director's credentials include a bachelor's degree in education, industrial training, or a technical field. However, a combination of specialized training and experience equivalent to a degree may satisfy the education/background requirement. At least two years of in-field training experience is required. The training director must be trained in the hazardous waste management procedures, and demonstrated knowledge of DOE orders and state and federal regulations relating to the transportation, storage, and disposal of radioactive, hazardous, mixed, and conventional wastes is desirable.

All training is developed and delivered by qualified persons who have completed a basic instructor training course approved by the training organization or have equivalent education or experience recognized by that organization. On-the-job training may be administered by persons completing a less comprehensive training course specific to this method.

4-1d Relevance of Training to Job Position

Training requirements for each job position are determined by supervisors or other subject matter experts working with the divisional (WO or P&E) training coordinator. This determination is based on consideration of the importance, difficulty, and frequency of the tasks to be performed and regulatory requirements. The training program is tiered to provide training to personnel at levels that are relevant to their positions. For example, specialized training is provided for waste operations personnel responsible for identifying and segregating wastes for completing waste labels or manifests and for P&E personnel responsible for driving trucks and/or forklifts or moving/securing waste containers (see Appendix 4-2). Elements of the training program for each job position in the TSD units are identified in Table 4-2.

All SOPs relevant to a given waste management operation or activity are reviewed by the trainee in self-paced study with testing.

4-1e Training for Emergency Response

The training program is coordinated by the emergency preparedness organization. Instructional elements are provided by the EC organization and the Protective Force. Personnel from appropriate

divisions ORNL-wide are trained to respond as needed to fires, explosions, radiological incidents, hazardous substance spills, and medical emergencies. Emergency response drills are conducted periodically to ensure readiness.

Key elements of the emergency response program include:

- procedures for using, inspecting, repairing, and replacing emergency and monitoring equipment;
- communications and alarm systems;
- response to radiation incidents, fires, or explosions;
- response to groundwater and/or surface water contamination incidents;
- shutdown of operations;
- contingency plan implementation;
- transportation of hazardous materials;
- hazards associated with radioactive wastes; and
- selection and use of personal protective clothing/equipment.

Some elements of emergency response are included in training programs provided by the EC organization. These elements include:

- portions of the contingency plan requirements and actions;
- organization of the ORNL emergency response capability;
- general emergency response and evacuation procedures;
- first-line employee response to hazardous substance spills or releases; and
- shutdown of operations or other emergency actions as defined by the Waste Management organization's SOPs.

Additional specialized training in emergency response is conducted for waste management personnel who would encounter spills and would be required to initiate corrective actions. This

training is frequently conducted by outside specialists via seminars, lectures, and response practices. These courses are offered by universities, consultants, or by DOE. Topics and exercises include fire safety, chemical safety, personal protective equipment, material safety data sheet (MSDS), spill response (demonstrations and/or practices), spill control practices, and cleanup and decontamination. These courses are designed for various levels of response (awareness, operations, technician, specialist, etc.). The level of training provided is commensurate with the job duties of assigned personnel.

4-2 IMPLEMENTATION AND DOCUMENTATION OF TRAINING PROGRAM

4-2a Implementation

All hazardous and/or mixed waste personnel complete the described training program within six months of assignment to the waste management job. No employee assigned to perform a hazardous waste management job will work unsupervised prior to completion of the training program.

4-2b Recordkeeping

Training records for each hazardous and/or mixed waste management employee, together with records documenting job titles and job descriptions, are maintained in print form by the waste management organization. Documentation of lesson plans for the training programs is the responsibility of the provider organizations (i.e., WO, P&E, or EC). Records of participation in training are generally maintained in computerized databases, which provide ready review of the employee's training history and need for retraining.

Individual training records for WO and P&E personnel involved with operations at the hazardous and/or mixed waste units at ORNL are reviewed annually by the WO training director with the status communicated to each employee. See Attachment 3 for additional information.

Table 4-1. Regulatory training frequency for treatment storage and disposal personnel

Course title	Approximate training time ¹	Approximate retraining time ¹	Retraining frequency
General Employee Training (GET)	4	4 ²	Biennial
Radiation Worker	8	8 ²	Biennial
SARA/OSHA (HAZWOPER) ⁷	24	8 ³	Annual
SARA/OSHA (HAZWOPER) Manager/Supervisor ⁸	8	8 ³	Annual
Hazardous Waste Operations Training (TSDF, Characterization, Satellite and 90-Day Area, LDR)	3	3	Periodic ⁴
<u>Spill Response</u>			
Operations	4	2	Periodic ⁴
Technician ⁸	32	32	Periodic ⁴
Specialist ⁸	40	40	Periodic ⁴
On-the-job Operations ⁵	24	24	Periodic ^{4,6}

All training times are in hours.

1. Due to diverse delivery methods (classroom, computer-based, self-study, etc.) and individual differences in student knowledge and capabilities, the completion time for courses will vary.
2. Successful completion of a proficiency exam can be accepted in lieu of formal training.
3. This 8-h retraining is for both HAZWOPER courses (site workers and managers/supervisors).
4. Frequency defined by procedures.
5. Content varies depending on job duties: ranges from waste classification, storage, and safety for WO staff to DOT licensing for truck drivers, etc., in accordance with SOPs.
6. Retraining provided when procedures are changed.
7. WPF complies with 29 CFR 1910.120(p).
8. This position not applicable to WPF per 29 CFR 1910.120(p).

Table 4-2. Positional training

Course title	Manager	Supervisor	Foreman	Technical staff/support	Tech./oper.	Other specialized support	P&E support ¹	LSS	Retraining
General Employee Training (GET) ²	R	R	R	R	R	R	R	R	R
Radiation Worker	R	R	R	R ¹	R	R ¹	R	R	R
SARA/OSHA (HAZWOPER) ^{2,5}	R ¹	R	R	R ¹	R	R ¹	R	R	R ^{1,3}
SARA/OSHA (HAZWOPER) ⁵	R	R	R						
Manager/Supervisors									
Hazardous Waste Operations Training (Characterization, Satellite Area, 90-Day Area, LDR, TSDF)	R ¹	R	R	R ¹	R ¹	R ¹		R ¹	R ¹
Spill Response Operations	R ¹	R ¹	R	R ¹	R ¹	R ¹	R ¹		R ¹
Technician ⁶	R ¹		R ¹	R ¹	R ¹				R ¹
Specialist ⁶		R ¹		R ¹					R ¹
On-the-job Operations ⁴	R ¹	R ¹	R ¹	R ¹	R ¹	R ¹	R ¹	R ¹	R ¹

R = Identifies training that is required.

- 1 Where applicable.
- 2 Includes basic laboratory spill response to awareness level.
- 3 Annually - focuses on regulatory changes.
- 4 Content varies depending on job duties: ranges from waste classification, storage, and safety for W/O staff to DOT licensing for truck drivers, etc., in accordance with SOP.
- 5 WPF complies with 29 CFR 1910.120(p).
- 6 Not applicable to WPF per 29 CFR 1910.120(p).

APPENDIX 4-1

Job Description

Position: Waste Operations Manager

Examples of Required Skills:

1. Knowledge of hazardous and/or mixed waste operations and management.
2. Knowledge of RCRA requirements (40 CFR 260-272, TN Rule 1200-1-11).

Required Education:

1. College degree in engineering, chemistry, or a science-related field, or equivalent experience and/or specialized training.

Examples of Job Duties:

1. Provides technical input to Waste Operations (including DOE, ORNL, or other ORR contractors when applicable) on development of waste acceptance criteria, emergency response, and other tasks related to hazardous and/or mixed waste management.
2. Provides technical input and assistance to audit teams during assessments of hazardous waste operations at ORNL.
3. Assumes responsibility for the management of hazardous and/or mixed waste operations in accordance with current site, DOE, state, and other applicable policies, procedures, orders, and/or regulations. Waste operations activities typically include:
 - waste acceptance,
 - transportation (off-site and on-site),
 - handling, processing, and/or packaging/repackaging,
 - treatment,
 - storage, and/or
 - disposal.

Job Description

Position: Waste Operations Supervisor

Examples of Required Skills:

1. Experience in supervising personnel.
2. Knowledge of hazardous and/or mixed waste operations and management.
3. Knowledge of RCRA requirements (40 CFR 260-272, TN Rule 1200-1-11) and DOT regulations (49 CFR).

Required Education:

1. College degree in engineering, chemistry, or a science-related field, or equivalent experience and/or specialized training.

Examples of Job Duties:

1. Provides technical assistance, when applicable, on waste classification, characterization, and other waste acceptance functions/activities.
2. Prepares/provides input for development/revision of Waste Operations assessments, standard operating procedures, and/or waste management plans, when applicable.
3. Prepares and/or coordinates shipments of hazardous and/or mixed wastes.
4. Supervises/supports activities for the management of hazardous and/or mixed waste in accordance with current site, DOE, state, and other applicable policies, procedures, orders, and/or regulations. Waste operations activities typically include:
 - waste classification and/or acceptance,
 - recordkeeping,
 - transportation (off-site and on-site),
 - handling, processing, and/or packaging/repackaging,
 - treatment,
 - storage, and/or
 - disposal.
5. Interfaces with applicable organizations (i.e., P&E, Radiation Protection, Environmental Compliance, Industrial Hygiene, QA, etc.) concerning hazardous and/or mixed waste operations and/or waste acceptance.

4-1-2

Class 1 Modification, Dated: 2/2/98
Class 1 Modification, Dated: 3/15/99

6. Supervises/assists with spill response activities, when applicable.
7. Investigates, evaluates, and develops occurrence reports, when required.

Job Description

Position: Waste Operations Technical Staff

Examples of Required Skills:

1. Knowledge of RCRA requirements (40 CFR 260-272, TN Rule 1200-1-11) and DOT regulations (49 CFR), and/or DOE orders for mixed wastes, as appropriate.

Required Education:

1. College degree in engineering, chemistry, or a science-related field, or equivalent experience and/or specialized training.

Examples of Job Duties:

1. Provides technical assistance to generators on waste documentation, packaging, classification, characterization, and other waste acceptance functions/activities.
2. Prepares/provides input and guidance for development/revision of Waste Operations assessments; standard operating procedures; waste management plans, when applicable; and/or corrective actions.
3. Prepares/generates internal reports, such as inventory of hazardous/mixed wastes, wastes generated by division, and/or off-site shipping reports, when required.
4. Reviews Request For Disposal (RFD) formsets and performs QA/QC checks on RFDs and the waste tracking system.
5. Interfaces with applicable organizations (i.e., P&E, Radiation Protection, Environmental Compliance, Industrial Hygiene, QA, etc.) concerning hazardous and/or mixed waste operations.
6. Manages activities related to assigned facility(ies) (i.e., building maintenance, improvements, etc.), where applicable.
7. Assists with shipments of hazardous and/or mixed wastes.
8. Investigates, evaluates, and develops occurrence reports, when required.

Job Description

Position: Waste Operations Foreman

Examples of Required Skills:

1. Experience in handling/processing operations and knowledge of the hazards associated with hazardous and/or mixed wastes.
2. Basic knowledge of RCRA requirements (40 CFR 260-272, TN Rule 1200-1-11) and DOT regulations (49 CFR).

Required Education:

1. High school graduate and three to five years experience in hazardous and/or mixed waste operations, or
2. College degree¹ in a technical field pertinent to hazardous waste management operations, or equivalent experience and/or specialized training.

Examples of Job Duties:

1. Supervises and coordinates routine waste handling activities, including, but not limited to:
 - waste pickup from generator areas (i.e., review of waste disposal forms, waste segregation, and container labeling and packaging prior to pickup);
 - waste transport to the permitted waste storage units (i.e., use of proper transport vehicles, use of properly trained personnel for the transport of hazardous waste); and
 - proper waste segregation and storage activities based on waste classification.
2. Ensures RCRA inspections are performed as required and records (including unit operating records and inventory logbooks) are complete and up to date.
3. Assists in preparation of shipments of hazardous and/or mixed wastes including packaging, marking and labeling waste.
4. Assists in spill response, when necessary.

¹ Required only with certain specified duties. See Waste Operations Training Department records for details.

Job Description

Position: Waste Operations Technician/Chemical Operator

Examples of Required Skills:

1. Experience in handling/processing operations and knowledge of the hazards associated with hazardous and/or mixed wastes.
2. Familiarity with RCRA requirements (40 CFR 260-272, TN Rule 1200-1-11) and DOT regulations (49 CFR).

Required Education:

1. Associate degree in a technical field pertinent to hazardous waste management operations, or equivalent experience and/or specialized training.

Examples of Job Duties:

1. Responsible for performing various job assignments associated with waste handling activities, including, but not limited to:
 - arranging or assisting with hazardous and/or mixed waste pickup from generator areas (i.e., verification of waste location, quantity, etc.);
 - packaging, labeling and marking waste and/or transport container(s) in accordance with applicable requirements;
 - coordinating crews for waste pick-up¹; and
 - determining waste storage location¹.
2. Ensures RCRA inspections are performed as required and records are complete and up to date.
3. Assists in segregation of wastes according to chemical classification.
4. Assists in the treatment of reactive wastes, when applicable¹.
5. May assist generators with proper requirements and waste acceptance criteria for waste packaging and disposal.
6. Participates as a spill responder² and performs associated cleanup activities.
7. Helps maintain waste storage units and equipment.

¹ Technical level duties.

² When applicable.