

Change Number M-19-95-01A	Federal Facility Agreement and Consent Order Change Control Form <small>Do not use blue ink. Type or print using black ink.</small>	Date August 20, 1996
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Originator T. L. Baker	Phone (509)376-5681
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Class of Change  
 I - Signatories       II - Executive Manager       III - Project Manager

Change Title  
 Revise M-19 Milestones to Allow for Alternate Treatment and Direct Disposal Options for Low Level Mixed Wastes

Description/Justification of Change

This change request proposes an alternative to constructing and operating the WRAP 2A Facility on the Hanford Site. The revised strategy would employ several parallel paths to accomplish the WRAP 2A mission for treating Contact Handled Low Level Mixed Waste. The new milestones will require that waste treatment and/or direct disposal begin by the same date planned for WRAP 2A and continue at a rate that equals or exceeds the cumulative throughput previously planned for WRAP 2A. A new major milestone establishes this treatment/disposal rate as a requirement through Fiscal Year (FY) 2002.

(continued)

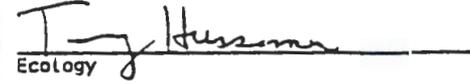
Impact of Change

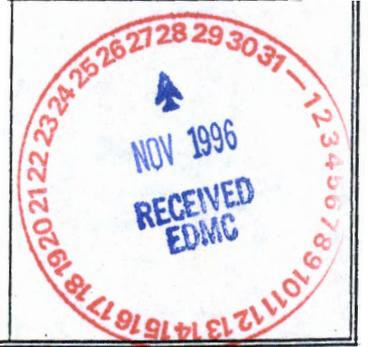
This change request creates a new major milestone (M-19-00) which sets specific requirements for treating and/or disposing of at least 1,644 cubic meters of Contact Handled Low Level Mixed Waste by the end of FY 2002. The previous major milestone, M-19-00, "Complete WRAP Module II Construction and Initiate Operations," due September 1999, is replaced by interim milestone M-19-01, which requires that treatment and/or direct disposal of waste be initiated by the same date, September 1999. The previous milestone M-19-01, "Complete WRAP Module II Construction," is deleted. Additional interim milestones and target dates are established for the treatment and disposal of Contact Handled Low Level Mixed Waste.

Affected Documents

Hanford Federal Facility Agreement and Consent Order, Fourth Amendment, January, 1994, Appendix D (Table D, pages D-41 and D-42, and Action Plan Work Schedule, page 13 of 40.)

Approvals

 DDE	9/13/96 Date	<input checked="" type="checkbox"/> Approved	<input type="checkbox"/> Disapproved
 EPA	10/3/96 Date	<input checked="" type="checkbox"/> Approved	<input type="checkbox"/> Disapproved
 Ecology	10/11/96 Date	<input checked="" type="checkbox"/> Approved	<input type="checkbox"/> Disapproved



Description/Justification (cont.)

The new strategy will utilize a combination of several different approaches as described below:

1. Contracts with commercial firm(s) to provide stabilization of Contact Handled Low Level Mixed Waste (CH-LLMW) on a fixed unit price basis. These contracts will provide required treatment for all of the waste streams originally designated for WRAP 2A, except for four small waste streams which will constitute less than two percent of the CH-LLMW projected for treatment in WRAP 2A. These small streams will be treated onsite using laboratory scale equipment per approach 2 and/or via a second commercial contract for treating high mercury subcategory waste as discussed in approach 4. Contracts will be maintained (extended or recompleted) until no longer needed to meet regulatory requirements. The stabilization contract will require that treatment begin during September 1999, and continue for a base period of five years with five optional one-year extensions.
2. Onsite treatment in WRAP 1, 2706-T or another permitted TSD facility using macro-encapsulation and/or a small scale deactivation/stabilization capability. Certain waste streams, such as radioactive elemental lead and debris, will be macro-encapsulated. However, the commercial contract option can be utilized for any or all of these waste streams if regulator concurrence is not obtained or the commercial approach is determined to be more cost effective.
3. Direct disposal of certain waste streams in compliance with applicable regulations, without any additional treatment. Three waste streams are candidates for this option. In each case additional sampling and analysis will be required to demonstrate that the streams meet LDR treatment requirements for disposal in the RMW landfill. Preliminary testing has shown that these streams, previously categorized as requiring additional treatment, will meet LDR treatment standards. Any of these waste streams that are found unsuitable for direct disposal by Ecology will default to the commercial contract for treatment.
4. In addition, additional contracts may be let for treatment services for small quantities of waste not within the scope of the WRAP 2A project or for high mercury waste (discussed in approach 1) which is not included in the stabilization contract.

The revised M-19 milestones use the WRAP 2A treatment plan (Ref: WHC-SD-W100-RD-001 Rev-1, *Waste Receiving and Processing Module 2A, Feed Specification*, November 1994) as the basis for the type and volume of waste to be treated and/or disposed. This basis was used in the WRAP 2A requirements document (Ref: WHC-SD-W100-FDC-001 Rev-2, *Functional Design Criteria, Waste Receiving and Processing Facility Module 2A, Project W-100*, October 1993) to establish a treatment throughput rate of 822 cubic meters per year. Facility implementation plans called for operating at 30% of capacity in the first year (FY 2000), 70% in the second, and 100% thereafter. Thus, the revised milestones are based upon annual treatment and/or disposal rates of 246 cubic meters in FY 2000, 575 cubic meters in FY 2001, and 822 cubic meters for FY 2002 and beyond until compliance is reached with the RCRA storage time limitation for land disposal restricted waste. The treatment and/or disposal requirements are stated on a cumulative basis as shown in Milestone M-19-00 below.

Description/Justification (cont.)

This new strategy will be consistent with the site treatment planning approach prescribed by the Federal Facility Compliance Act and with offsite generator Site Treatment Plans approved prior to October 6, 1995.

Revised Milestones

Delete existing Milestones M-19-00 and M-19-01 as follows:

M-19-00 Complete WRAP Module II Construction and Initiate Operations 9/30/1999

The WRAP Module II will include waste treatment capabilities to minimize land disposal of Low-Level Radioactive Waste and Radioactive Mixed Waste. The September 1999 completion date of WRAP Module II is critical to achieving compliance for the management of wastes that are prohibited from land disposal and extended storage. WRAP Module 2 will provide for treatment of secondary solid waste resulting from treated effluent disposal systems.

M-19-01 Complete WRAP Module II Construction 9/30/1998

Add revised Milestones M-19-00 and M-19-01 as follows:

M-19-00 Complete treatment/and or direct disposal of at least 1,644 cubic meters of Contact Handled Low Level Mixed Waste already in storage as of October 1, 1995, as well as newly generated Hanford Site low level mixed waste. 9/2002

Cumulative treatment and/or direct disposal rates will be at least 246 cubic meters by the end of FY 2000, 822 cubic meters by the end of FY 2001, and 1,644 cubic meters by the end of FY 2002.

For the purpose of these M-19 series milestones, direct disposal of low-level mixed waste as described below, will be considered equivalent to treatment.

M-19-01 Initiate Treatment of Contact Handled Low Level Mixed Wastes 9/1999

Treatment of Contact Handled Low Level Mixed Waste will begin on or before September 30, 1999.

Additional Target Dates and Interim Milestones are established as follows:

M-19-01-T01 Complete the determination of the level of NEPA documentation that will be required for commercial treatment contractor(s). 10/1996

M-19-01-T02 Award a commercial contract for stabilization of Contact Handled Low Level Mixed Waste. 9/1997

Hanford Federal Facility Agreement and Consent Order  
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## Description/Justification (cont.)

- M-19-01-T03 Complete all NEPA requirements related to the commercial contract for stabilization of Contact Handled Low Level Mixed Waste. 9/1998
- M-19-02 Complete sampling and analysis to determine if Backlog Soils meet LDR treatment standards and/or MTCA risk based concentrations. 12/1996
- If additional sampling and analysis demonstrates that backlog soils meet MTCA risk based concentrations, they will be disposed of in the non-regulated LLW landfill. If the soils fail MTCA risk based concentrations, but meet LDR treatment standards, they will be disposed in the RMW landfill. Otherwise, stabilization using the commercial contract will be required before disposing of the soils.
- M-19-03 Obtain Ecology decision on the acceptability of the existing solidification treatment of 183H Solidified Liquids as LDR treatment. 12/1996
- M-19-03A Submit justification for accepting existing solidification treatment of 183H Solidified Liquids to Ecology. COMPLETED 7/1996
- Ongoing sampling and analysis of 183H Solidified Liquids indicates that the existing grouted waste form meets applicable RCRA stabilization treatment standards and all TCLP requirements. Additional sampling and analysis will be utilized to determine if the waste stream meets applicable standards for direct disposal in the RMW landfill.

## TPA ADMINISTRATIVE RECORD

M-19-00 AND 01 COMPLETE WRAP MODULE II CONSTRUCTION AND INITIATE OPERATIONS  
CHANGE REQUEST FORM

A draft change request form for the milestones M-19-00 and M-19-01 were submitted for public comment on April 22, 1996, through June 6, 1996. As a result of one comment received from the public and further discussions between Ecology and RL, the following changes were made finalizing the change request form:

- 1) M-19-00: Reference to Ecology approval of a variance from treatment standards for formic acid have been deleted. (See attached response to comment).
- 2) M-19-01-T02: Due date for awarding a commercial contract for stabilization of Contact Handled Low Level Mixed Waste has been changed from July 1996 to September 30, 1996. (See attached Inter Agency Management and Integration Team meeting minutes June 25, 1996).
- 3) M-19-02 and M-19-02A: Milestones for submitting and obtaining a treatment variance from Ecology for formic acid have been deleted since an application to use an alternate treatment method has already been applied for and granted by both EPA and Ecology. (See attached approval letters from EPA and Ecology).
- 4) Numbering sequence of the milestones has been changed from the draft to reflect deletion of milestones in item 3 above.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, D.C. 20460

MAY 21 1996

OFFICE OF  
SOLID WASTE AND EMERGENCY  
RESPONSE

Mr. Thomas K. Teynor  
Director, Waste Programs Division  
Department of Energy, Richland Operations Office  
P.O. Box 550  
Richland, Washington 99352

Dear Mr. Teynor:

EPA has reviewed your request for a "determination of equivalent treatment" as authorized by 40 CFR 268.42(b) for the 12,736 55-gallon drums and 14 roll-off boxes of waste arising or derived from the closure of the 183-H solar evaporation basins at the DOE Hanford Site (except miscellaneous waste that is debris) which is currently stored at the Central Waste Complex of the Hanford Site.

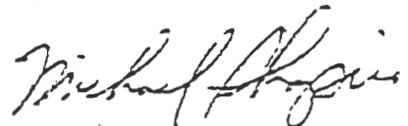
Based on the information provided in your application and conversations between your staff and mine, EPA is approving the request for a "determination of equivalent treatment". The EPA agrees that combustion is not appropriate for this waste, due to the significant metal content, low organic content (<0.74% TOC), and presence of radio nuclides in the waste. The proposed treatment of stabilization and compliance with the concentration-based treatment standards for the applicable waste codes for which numerical standards have been promulgated should effectively minimize threats to human health and the environment. Compliance with these standards does not relieve the facility from compliance with any other applicable treatment standards associated with this waste. This standard does not replace any other applicable federal, state, or local requirements as specified in the facility's waste analysis plan.

Post-It™ brand fax transmittal memo 7671		# of pages	5
To	MOSSES JARAYSI	From	KEVIN BARTZELL
Co.	ECOLOGY	Co.	DOE
Dept.		Phone #	373-0463
Fax #	736-3030	Fax #	372-7926

RECEIVED  
JUN 04 1996  
DOE RL/CCC

Enclosed you will find our determination on your request. If you need further assistance, please contact Shaun McGarvey, Chemical Engineer, Waste Treatment Branch (703-308-8603).

Sincerely yours,



Michael Shapiro, Director  
Office of Solid Waste

Enclosure

cc: Jim Thompson, OWPE

9713508.1141

**Determination of Equivalent Treatment**

40 CFR 268.42(h)

**Notification of Acceptance**

Notification Number: OSW-DE010-0596A

**Requesting Facility:** United States Department of Energy  
Richland Operations (Hanford Reservation)

**Facility Address:** 825 Jadwin Avenue  
Richland, WA 99352

**EPA Facility ID #:** WA7890008967

**Facility Representative:** R. F. Garcia

**Phone:** (509) 376-5494

**Date of Initial Request:** October 1995

**Waste Description for Which Replacement Standard is Applicable:**

All waste arising or derived from the closure of the 183-H Solar Evaporation Basins at the DOE Hanford Site, except miscellaneous waste that is debris. The waste consists of 12,736 55-gallon drums and 14 roll-off boxes of material which is currently stored at the Central Waste Complex of the Hanford Site. The waste consists of inorganic salts (as much as 90% sodium nitrate) containing radionuclides and low organic content (<0.74% TOC). See attached table 1 in the Petition for a summary categorization of all wastes from the basin closure, and table 3 for median concentrations of constituents in the waste.

The evaporation basins were used for volume reduction of spent acid solutions from nuclear fuel fabrication operations. Approximately 2.5 million gallons of material were discharged to the basins. In addition, small amounts of unused chemicals were discharged to the basins on a non-routine basis. Process knowledge indicates that 2 pounds of formic acid were discharged to the basins, along with various cyanide salts and vanadium pentoxide. All of the inorganic Underlying Hazardous Constituents (UHC's) listed in the UTS table at 40 CFR 268.48 except selenium, thallium, and sulfide were discharged to the basins at some time.

**Basis of Request:**

Because liquid waste was transferred from basin to basin during operations, the mixture and derived from rules result in waste code carry through. Thus, the large quantity of waste which is primarily inorganic salts from the evaporation of spent acid solutions carries the waste codes and treatment standard requirements for the small quantities of spent chemicals which were discharged to the basins. Due to the discharge of 2 lbs of formic acid (Waste Code U123) to the basins, the combustion (CMBST) treatment standard for U123 nonwastewaters applies to the bulk waste, even though the formic acid content of the waste is minimal (<740 ppm).

The applicant states that combustion is inappropriate for this waste because the waste consists of inorganic salts containing radionuclides and minimal organic content, combustion treatment would result in a residual matrix which is more hazardous to human health and the environment and would produce air emissions of radioactive particles, oxides of nitrogen, and technetium 99.

The applicant proposes to send the waste to an offsite vendor for stabilization with portland cement and flyash, prior to disposal in the the onsite Hanford 200 West area Radioactive Mixed Waste Landfill.

Previously Applicable Treatment Standard for Which Equivalency is Granted:

Waste Code	Physical Form	40 CFR 268.40 Standard
U123	Nonwastewaters	CMBST

**Replacement Treatment Standards**

STABL and compliance with the concentration-based treatment standards for the applicable waste codes for which numerical standards have been promulgated. See attached tables 6 and 7 in the Petition for a summary of the treatment standards which still apply to this waste.

Compliance with these standards does not relieve the facility from compliance with any other applicable treatment standards associated with this waste. This standard does not replace any other applicable federal, state, or local requirements as specified in the facility's waste analysis plan.

**Justification for the Equivalent Treatment Standard:**

The EPA agrees that combustion is not appropriate for this waste, due to the significant metal content, low organic content (<0.74% TOC), and presence of radionuclides in the waste. Hazardous organic constituents are not present in concentrations sufficient to make aggressive destruction technologies such as combustion appropriate for the treatment of this waste. The waste must still comply with the treatment standards for all other applicable waste codes. STABL is already required for the vanadium pentoxide (P120) constituent within the waste.

The formic acid content of the stabilized waste will be minimal. The formic acid concentration of the waste (<740 ppm) is approximately 200 times less than the MTCA Method B Standard of 160,000 ppm. Formic acid is not carcinogenic; it is regulated primarily for its corrosive property.

**Authorities and References:**

This Determination of Equivalent Treatment is in accordance with 40 CFR 268.42(b) which states: "Any person may submit an application to the Administrator demonstrating that an alternative treatment method can achieve a measure of performance equivalent to that achievable by methods specified in paragraphs (a), (c), and (d) of this section. The applicant must submit information demonstrating that his treatment method is in compliance with federal, state, and local requirements and is protective of human health and the environment. On the basis of such information and any other available information, the Administrator may approve the use of the alternative treatment method if he finds that the alternative treatment method provides a measure of performance equivalent to that achieved by methods specified in paragraphs (a), (c), and (d) of this section. Any approval must be stated in writing and may contain such provisions and conditions as the Administrator deems appropriate. The person to whom such approval is issued must comply with all limitations contained in such a determination." This provision was further clarified in the preamble for the Land Disposal Restrictions for Third Third Scheduled Wastes; Final Rule (55 FR 22536 (June 1, 1990)) as follows: "When EPA requires the use of a technology (or technologies), a generator or treater may demonstrate that an alternative treatment method can achieve the equivalent level of performance as that of the specified treatment method [40 CFR 268.42(b)], this demonstration is typically both waste-specific and site-specific and may be based on: (1) The development of a concentration based standard that utilizes a surrogate or indicator compound that guarantees effective treatment of the hazardous constituents; (2) the development of a new analytical method for quantifying the hazardous constituents; and (3) other demonstrations of equivalence for an alternative method of treatment based on a statistical comparison of technologies, including a comparison of specific design and operating parameters."

**Attachments:**

Effective Date: Date of Signature.

Dated: 5/21/96



Michael Shapiro, Director  
Office of Solid Waste

JUL 16 '96 02:29PM DEPT OF ECOLOGY

NMWMP - Hanford

JUL 11 1996



Kennewick

STATE OF WASHINGTON

DEPARTMENT OF ECOLOGY

P.O. Box 47600 • Olympia, Washington 98504-7600  
(360) 407-6000 • TDD Only (Hearing Impaired) (360) 407-6006

July 10, 1996

Mr. James E. Rasmussen, Director  
Environmental Assurance, Permits and Policy Division  
U.S. Department of Energy  
P.O. Box 550 MSIN: A5-15  
Richland, WA 99352

Post-It™ Fax Note	7671	Date	8/21	# of pages	1
To	FG LIX	From	JOE WILSON		
Co./Dept.		Co.			
Phone #		Phone #			
Fax #	576-0306	Fax #			

Dear Mr. Rasmussen:

Re: Approval of the 183-H Basin Waste Equivalent Treatment Petition.

The Washington State Department of Ecology (Ecology) has reviewed your request for a "determination of equivalent treatment" as authorized by the Washington Administrative Code (WAC) 173-303-140 (2) and WAC 173-303-045 for the 12,736 55-gallon drums and 14 roll-off boxes of waste derived from the closure of the 183-H solar evaporation basins at the Hanford Site (except miscellaneous waste that is debris). This waste is currently being stored at the Hanford Central Waste Complex storage facility.

Your petition (96-EAP-086) requested approval of an equivalent treatment for the formic acid (U123) combustion treatment standard applicable to this waste. Based on the information provided in your application, Ecology concurs with the Environmental Protection Agency's approval of your request for a "determination of equivalent treatment." Ecology agrees that combustion is not appropriate for this waste due to the low organic content (<0.7 TOC), significant metal content, and the presence of radionuclides. The proposed stabilization treatment should effectively minimize threats to human health and the environment. Acceptance of this petition does not relieve the U.S. Department of Energy from compliance with other applicable federal, state, or local treatment standards associated with this waste.

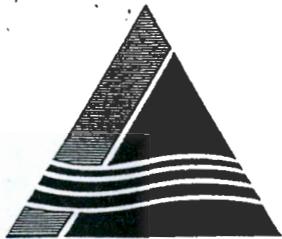
If you have any questions regarding the above determination, please call Laura Cusack at (509) 736-3038, or Moses Jaraysi at (509) 736-3016.

Sincerely,

Mike Wilson, Manager  
Nuclear Waste Program

MW:LC:mf

cc: Tom Teynor, USDOE



Tri-Party Agreement

Mr. Anthony Miskho  
514 N. Hawaii Place  
Kennewick, WA 99336

Dear Mr. Miskho:

TPA MILESTONE COMMENT PERIOD FOR WRAP II MILESTONES

The Washington State Department of Ecology (Ecology) and the U.S. Department of Energy, Richland Operations Office (RL) have reviewed your comments on the WRAP II milestones and formulated this joint response:

1. **Comment:** The 183-H Solar Evaporation Basin Waste discussions under milestone M-19-00, M-19-02, and M-19-02A incorrectly references a treatability variance found at 40 CFR 268.44. The correct regulatory provision for this waste is found at 40 CFR 268.42 (b). This provision is not a treatability variance but an "application to the Administrator demonstrating that an alternative treatment method can achieve a measure of performance equivalent to that...". These milestones need to be modified to properly reflect the regulatory provision being utilized.

**Response:** Ecology and RL both agree with your comment. The application suggested in your comment above was forwarded to the EPA Region 10 Administrator on October 17, 1995. EPA approval of the application was granted on May 21, 1996. See Attachment 1.

2. **Comment:** EPA has not delegated the authority in 40 CFR 268 to Ecology yet despite Ecology's incorporation of these requirements into WAC 173-303-140. The milestones incorrectly state Ecology has the authority to make this determination on their own. To give the lead regulatory agency concept a chance, milestones M-19-00, M-19-02, and M-10-02A need to address alternate treatment. An approval usually implies a written determination by the agency having the authority. These milestones should be modified to indicate that a written determination from both EPA and Ecology will satisfy the regulatory requirements.

Since the Memorandum of Understanding stated in Article XXIV, paragraph 89 of the TPA has not been placed out for public comment, Ecology assuming the lead agency role on this matter is placing themselves at risk. It

Mr. Anthony Miskho

-2-

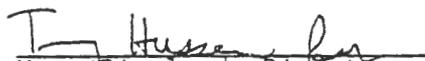
appears that the Executive Summary of the TPA action plan under Regulatory Authorities obligates both EPA and Ecology to issue written determinations on these matters. There will be no risk to Ecology if completion of these milestones involves a written determination by EPA and Ecology placed into the administrative record.

**Response:** In addition to the written approval noted in response to your first comment, Ecology has formally approved RL's application for alternate treatment. See Attachment 2.

As a result of receiving the approval for alternative treatment Ecology and RL have agreed to delete milestones M-19-02 and M-19-02A from this change package. This change is documented in the TPA Administrative Record.

Our respective agencies wish to extend our appreciation for your comments on this TPA change request package.

Sincerely,

  
Mary Riveland, Director  
State of Washington  
Department of Ecology

  
John D. Wagoner, Manager  
U.S. Department of Energy  
Richland Operations Office