

# Proposed Tri-Party Agreement Modifications and Reference Documents for

**K Basins Spent Nuclear Fuel  
Project (M-34-00A)**

**Disposition of Hanford  
Surplus Reactors (M-93-00)**



**Public Comment Period  
June 9 to July 23, 1997**



*Tri-Party Agreement*

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*Hanford Federal Facility Agreement and Consent Order (Tri-Party Agreement)*  
Proposed Tri-Party Agreement Modifications  
and Reference Documents for

- **K Basins Spent Nuclear Fuel (M-34-00A)**
- **Disposition of Hanford Surplus Reactors (M-93-00)**

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# Changes Proposed to Hanford's Tri-Party Agreement

- **K Basins Spent Nuclear Fuel Project**
- **Disposition of Hanford Surplus Reactors**



U.S. Department of Energy • U.S. Environmental Protection Agency • Washington State Department of Ecology

## REQUEST FOR PUBLIC COMMENT

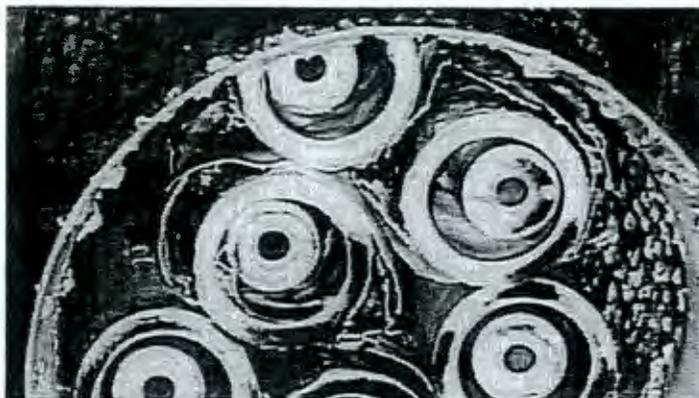
The Tri-Party Agencies, the U.S. Department of Energy (DOE), the Washington State Department of Ecology, and the U.S. Environmental Protection Agency, request your review and comments on two Tri-Party Agreement proposals: 1) K Basins Spent Nuclear Fuel Project, and 2) Disposition of Hanford Surplus Reactors. **The public comment period begins on June 9 and ends July 23, 1997.**

All public comments will be considered and responded to before final decisions are made for each proposal. Because each of these proposals are consistent with existing project schedules and expected funding, public meetings are not currently scheduled. Should substantial public interest indicate a need for such meetings, the Tri-Parties will respond accordingly.

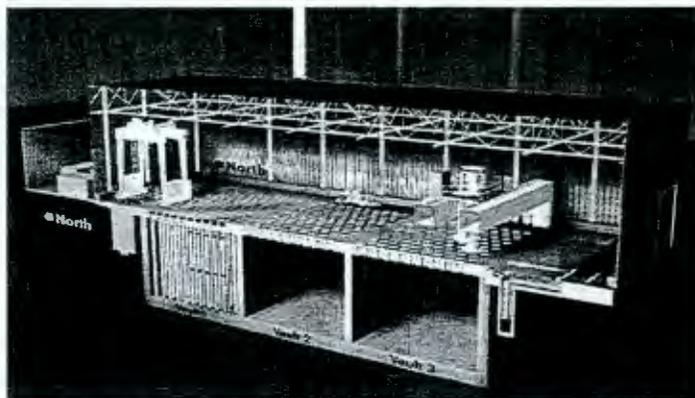
## K BASINS SPENT NUCLEAR FUEL PROJECT

A new major milestone and associated interim milestone and target dates are proposed which will direct ongoing activities leading to the completion of the project to remove 2,100 metric tons of spent nuclear fuel from two basins adjacent to the Columbia River. Milestones also have been proposed

to decontaminate and decommission the basins following completion of the spent fuel project. The facilities will then be transitioned to DOE's Environmental Restoration Project for final disposition.



Spent fuel rods stored in K East Basin are corroding

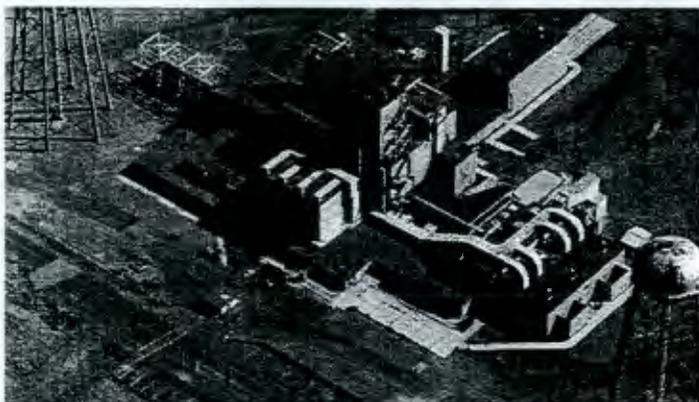


New facility to store spent fuel away from the Columbia River (construction to be completed by September 1997)

## DISPOSITION OF HANFORD SURPLUS REACTORS

A new major milestone, associated interim milestones, and target dates are proposed for decommissioning and disposition of DOE's nine surplus production reactors located on the

Columbia River. The Tri-Parties also propose several modifications to Section 8.0 of the Tri-Party Agreement, which addresses decommissioning of key Hanford facilities.



C Reactor (prior to interim safe storage)



Interim safe storage of C Reactor in 1998 (Artist Rendering)

## HOW YOU CAN BE INVOLVED:

The proposed modifications and associated information may be reviewed at the public information repositories listed below. A copy of the document is also available electronically on the Internet at the following address:

**[www.hanford.gov](http://www.hanford.gov)**

To request a copy of the proposed modifications and reference documents, or to submit comments either written or electronically, contact:

**George Sanders**

U.S. Department of Energy  
P.O. Box 550 (A5-15)  
Richland, WA 99352  
(509) 376-6888  
E-Mail: [george\\_h\\_sanders@rl.gov](mailto:george_h_sanders@rl.gov)

## PUBLIC INFORMATION REPOSITORY LOCATIONS:

**SEATTLE**

University of Washington  
Suzzallo Library  
Government Publications Room  
(206) 543-4664  
ATTN: Eleanor Chase

**PORTLAND**

Portland State University  
Branford Price Millar Library  
Science and Engineering Floor  
Tri-Party Information Repository  
SW Harrison and Park  
(503) 725-3690  
ATTN: Michael Bowman

**SPOKANE**

Gonzaga University  
Tri-Party Information Repository  
Foley Center  
E. 502 Boone  
(509) 324-5932  
ATTN: Tim Fuhrman

**RICHLAND**

U.S. Department of Energy Reading Room  
Washington State University, Tri-Cities  
100 Sprout Road, Room 130 West  
(509) 376-8583  
ATTN: Terri Traub

## FOR MORE INFORMATION PLEASE CONTACT:

**Roger Stanley**

Washington State Department of Ecology  
P.O. Box 47600  
Olympia, WA 98504-7600  
(360) 407-7108

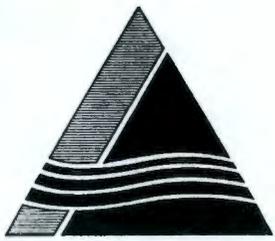
**George Sanders**

U.S. Department of Energy  
P.O. Box 550 (A5-15)  
Richland, WA 99352  
(509) 376-6888

**Doug Sherwood**

U.S. Environmental Protection Agency  
712 Swift Boulevard, Suite 5  
Richland, WA 99352  
(509) 376-9529

**Or Call the Hanford Cleanup  
Toll-free Line at 1-800-321-2008.**



Tri-Party Agreement

TENTATIVE AGREEMENT ON

HANFORD FEDERAL FACILITY AGREEMENT AND CONSENT ORDER  
NEGOTIATION FOR THE COMPLETION OF TRANSITION AT  
K EAST AND K WEST BASINS

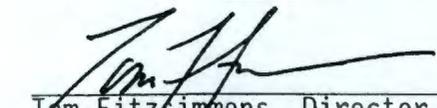
In August of 1996, the U.S. Department of Energy, the U.S. Environmental Protection Agency, and the Washington State Department of Ecology, (the parties), signed an Agreement in Principle (AIP) to conduct negotiations for the purpose of establishing milestones for the K Basins. The AIP was followed by negotiations to establish M-34 milestones in the Hanford Federal Facility Agreement and Consent Order (Agreement) that replace the existing M-34 milestones. The milestones are for the removal of Basin(s) fuel, sludge and debris, water, and completion of Facility Transition Activities including transfer of the facilities to DOE's Environmental Restoration Project.

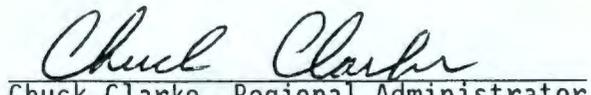
Pursuant to the parties Inter-Agency Management Integration Team (IAMIT) Resolution of Dispute, the parties have concluded K Basins negotiations and have reached tentative agreement. A summary and copy of this tentative agreement is attached.

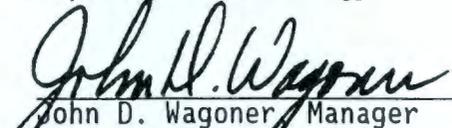
This tentative agreement will be submitted to the public for review and comment for a 45 day period. Copies of this agreement will be available for review at the parties' public information repositories. Following the 45 day public comment period, the parties will make appropriate revisions before final approval. The specific public comment period dates will be coordinated to ensure Hanford Advisory Board opportunity for review and comment. Prior to final agreement, a response to comments document will be developed. The parties anticipate that final signatures will take place by August 31, 1997.

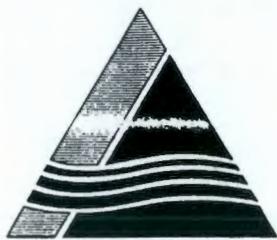
The parties further agree that to minimize additional delay in the event they fail to agree on any changes as the result of public comment, all unresolved matters shall be referred to the Agreement dispute resolution process beginning at the IAMIT level as described in the Agreement. The parties shall attempt to resolve the dispute(s) as provided for in Agreement paragraph(s) 30 and/or 59.

Signed this 30 day of April 1997

  
\_\_\_\_\_  
Tom Fitzsimmons, Director  
State of Washington  
Department of Ecology

  
\_\_\_\_\_  
Chuck Clarke, Regional Administrator  
U.S. Environmental Protection Agency  
Region 10

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



RESOLUTION OF DISPUTE FOR MILESTONE M-34-00

In accordance with the requirements of the Agreement in Principle, dated August 16, 1996, the State of Washington Department of Ecology, the U.S. Environmental Protection Agency, and the U.S. Department of Energy (the Parties) have concluded negotiations on commitments for Resolution of Dispute of Milestone M-34-00. A tentative agreement has been reached and a package of changes to the Hanford Federal Facility Agreement and Consent Order (Agreement) has been developed and found mutually acceptable to the parties. These changes are attached to this Resolution of Dispute.

It is the parties' intent to submit this package of changes to the Agreement for a 45 day public comment period to run from approximately June 1, 1997, to July 15, 1997. Specific public comment period dates will be coordinated to ensure HAB opportunity for review and comment. Final approval of changes to the Agreement is expected to occur by August 31, 1997. Following successful resolution of any resulting public comments, a response to comments document will be issued.

Contingent upon final approval of the tentative agreement by the Signatories, and consideration and resolution of any resulting public comments, it is the parties' intent to approve these changes and incorporate them into the Agreement.

Michael A. Wilson 4/18/97  
Michael A. Wilson      Date  
Manager, Nuclear Waste Programs  
State of Washington  
Department of Ecology

N/A

Douglas R. Sherwood      Date  
Douglas R. Sherwood  
Hanford Project Manager  
U.S. Environmental Protection Agency

Charles A. Hansen 4/17/97  
Charles A. Hansen      Date  
Assistant Manager, Waste Management  
U.S. Department of Energy  
Richland Operations Office



Tri-Party Agreement

# Changes Proposed to Hanford's Tri-Party Agreement

## New Milestones for K Basins Spent Nuclear Fuel Project and K Basins Facility Transition Activities

U.S. Department of Energy • U.S. Environmental Protection Agency • Washington State Department of Ecology

### REQUEST FOR PUBLIC COMMENT

Your review and comment is requested on proposed Tri-Party Agreement milestones and target dates for the U.S. Department of Energy's (DOE) K Basins Spent Nuclear Fuel Project. These proposed changes will direct current project activities and removal of 2,100 metric tons of spent nuclear fuel from two basins near the banks of the Columbia River. Milestones also are proposed for the completion of subsequent basin cleanout and transition to DOE's Environmental Restoration Project. **Public comments will be accepted from June 9 to July 23, 1997.**

**To request a copy of the document, or to submit comments either written or electronically, please contact:**

**George Sanders**  
U.S. Department of Energy  
P.O. Box 550 (A5-15)  
Richland, WA 9935  
(509) 376-6888  
E-Mail: [george\\_h\\_sanders@rl.gov](mailto:george_h_sanders@rl.gov)

### BACKGROUND

The highest near-term cleanup priority at the Hanford Site is the two million-gallon K Basin pools that store 80 percent of the DOE's national inventory of spent nuclear fuel. Less than a quarter-mile from the Columbia River, the basins are adjacent to the shut-down K East and K West reactors.

The basins contain approximately 105,000 individual fuel assemblies (fuel rods grouped together in sealed or open canisters). These are "spent" fuel rods which have been exposed to a sustained chain reaction in Hanford's N Reactor. Water in the basins cools the highly radioactive spent fuel and provides a radiation shield for facility workers.

As the damaged fuel and canisters corrode, radioactive materials are being released into the basins. Approximately 70 cubic meters (2,472 cubic feet) of contaminated sludge has accumulated in the basins, and more than 57 million liters (15 million gallons) of contaminated water has leaked to the surrounding soil and groundwater.

### INITIAL PLAN

Hanford's K Basins represents the #1 spent nuclear fuel safety issue in the DOE complex. In 1994, the Defense Nuclear Facilities Safety

Board (DNFSB) stated that an integrated program plan should be formulated on a high priority basis to address the safe interim storage of the fuels.

In response to these concerns, DOE issued in 1995 an Environmental Impact Statement Record of Decision for Spent Nuclear Fuel. The Record of Decision called for the removal, stabilization and transfer of the fuel from both basins to a dry storage facility currently under construction in the interior of the Hanford Site's 200 East Area. The Record of Decision also specified that the basin sludges be removed and disposed of using the high level waste vitrification process. Disposal of debris and other articles from the basins will be accomplished through existing Hanford site waste disposal practices.

This change in direction required renegotiation of Tri-Party Agreement spent fuel milestones and commitments. Facility transition milestones also are proposed which ensure that the basins will be properly decontaminated and decommissioned and transferred to the Environmental Restoration Project for final disposition.

### PRINCIPLE ISSUES

In their negotiations, Ecology and DOE followed advice from the Hanford Advisory Board and numerous stakeholders to complete negotiations and "get on with cleanup" of the K Basins. Among the issues resolved by the negotiation team were:

- ▲ Identifying the regulatory pathway for the project. The Tri-Parties propose to use the Comprehensive Environmental Response, Compensation and Liability Act, commonly known as Superfund, which offers appropriate enforcement avenues without causing unnecessary project delay.
- ▲ Ensuring that polychlorinated biphenyls, commonly known as PCBs, discovered in the K East Basin sludges are managed properly. The proposed interim resolution for these sludges is storage in dedicated tanks. The Tri-Parties are continuing to work together to develop a reasonable means of complying with the requirements of the Toxics Substances Control Act (TSCA) and in assessing the extent to which meeting Resource Conservation and Recovery Act (RCRA) requirements will suffice for both.
- ▲ The milestone package was structured to provide flexibility in near-term K Basin work schedules, while maintaining an accelerated project schedule that addresses the environmental issues and safety risks. This included aligning DOE and DNFSB milestones with regulatory requirements.

# SPENT NUCLEAR FUELS PROJECT/TRANSITION MILESTONES

## FISCAL YEAR

Task Name	Finish	1995		1996		1997		1998		1999		2000		2001		2002		2003		2004		2005	
		Qtr 3	Qtr 1	Qtr 3																			
<b>Enforceable Milestones</b>																							
Major M-34-00A	12/31/05																						Complete K Basins Facility Transition
Interim M-34-03	6/30/97																						Complete CERCLA Engineering Evaluation/Cost Assessment
Interim M-34-05 (Annual)	5/31/97																						Issue Annual Debris Report to Ecology
Interim M-34-08	9/30/00																						Initiate Full-Scale K-East Basin Sludge Removal
Interim M-34-10	8/31/01																						Complete Sludge Removal From K Basins
Interim M-34-16	2/28/99																						Initiate Removal of K-East Basin Spent Fuel
Interim M-34-18	7/31/00																						Complete Removal of K-East and K-West Basins Spent Fuel
Interim M-34-19	7/31/00																						Initiate Basin Water Remediation
Interim M-34-20	9/30/01																						Complete Removal/Treatment and Remediation of K-East Basin Water
<b>Target Dates</b>																							
Target M-34-04-T01	5/31/97																						Issue Draft Preliminary Safety Assessment
Target M-34-06-T01	10/31/98																						Initiate K-West Canister Cleaning
Target M-34-07-T01	1/31/00																						Complete Final Safety Basis for K Basins Sludge
Target M-34-09-T01	2/28/01																						Complete K Basin Debris Removal
Target M-34-11-T01	12/31/97																						Issue K Basins (SNF) Transition Turnover Criteria
Target M-34-12-T01	5/31/98																						Complete Spent Fuel Operational Readiness Review
Target M-34-13-T01	12/31/97																						Complete Construction K-West Integrated Water Treatment System
Target M-34-14-T01	12/31/98																						Complete Construction of K-East Integrated Water Treatment System
Target M-34-15-T01	5/31/98																						Initiate Removal K-West Basin Spent Fuel
Target M-34-17-T01	9/30/98																						Complete Installation/Construction K Basins Fuel Retrieval Systems

Additional milestones are proposed for transition and can be reviewed in the document

H97050201.1

## NEW STRATEGY

Ecology and DOE concluded negotiations in April 1997. The new spent fuel strategy is reflected in this proposed change, deleting the old TPA Milestone M-34-00 and adding a new milestone series, M-34-00A. Key elements of the new milestone series include:

- ▲ Begin removal of spent nuclear fuel from the K Basins to the Canister Storage Building by May 1998
- ▲ Complete fuel removal from both basins by July 2000
- ▲ Begin remediation of K East Basin water to reduce tritium levels by July 2000
- ▲ Complete removal of sludge and debris by August 2001
- ▲ Transfer K Basins to the DOE's Facility Transition Program by 2001
- ▲ Begin removal of all water from the basins by 2003
- ▲ Complete transition and transfer to the Environmental Restoration Project by 2005. The basins will be kept in a safe, low-cost maintenance condition until final disposition decisions are made.

*For More Information on the  
Tri-Parties' Proposed Modifications,  
Please Contact:*

**Roger Stanley** (360) 407-7108  
Washington State Department of Ecology  
P.O. Box 47600  
Olympia, WA 98504-7600

**George Sanders** (509) 376-6888  
U.S. Department of Energy  
P.O. Box 550 (A5-15)  
Richland, WA 99352

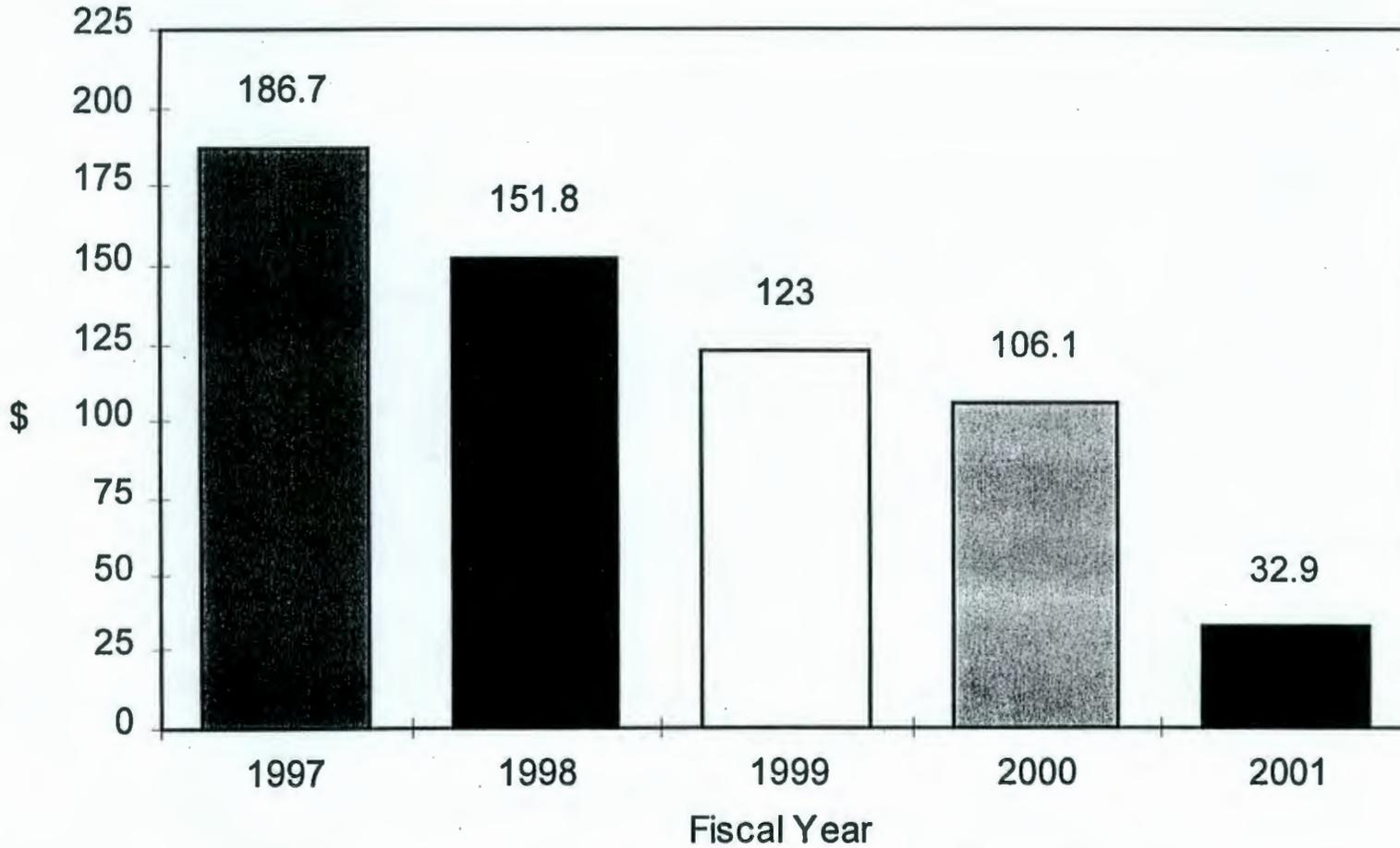
**Doug Sherwood** (509) 376-9529  
U.S. Environmental Protection Agency  
712 Swift Boulevard, Suite 5  
Richland, WA 99352

*or call the Hanford Cleanup  
Toll-free Line at 1-800-321-2008.*

H97050201.2

# SNF Project Budget Profile

(\$ in Millions)



Note: This profile applies only to fuels and the Spent Nuclear Fuels Project. Facility Transition costs are not included.



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<b>Change Number</b>  <b>M-34-97-01</b>	<b>Federal Facility Agreement and Consent Order</b> <b>Change Control Form</b> <small>Do not use blue ink. Type or print using black ink.</small>	<b>Date</b>  <b>April 16, 1997</b>
<b>Originator Agreement Negotiation Team</b>		
<b>Class of Change</b>  <input checked="" type="checkbox"/> I - Signatories <input type="checkbox"/> II - Executive Manager <input type="checkbox"/> III - Project Manager		
<b>Change Title</b> <b>Negotiation of Hanford Federal Facility Agreement and Consent Order (Agreement) commitments for the completion of K East and K West Basin facility transition and the initiation of the Surveillance and Maintenance phase.</b>		
<b>Description/Justification of Change</b> In 1993, the U. S. Department of Energy (DOE) documented the loss of a substantial quantity of water from the 105 K East Basin where spent nuclear fuel is being stored. DOE operational monitoring data confirmed that the basin water released was contaminated with concentrations of radionuclides exceeding public health and environmental protection standards established by the U.S. Environmental Protection Agency (EPA) for hazardous substances as defined by the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA). The DOE acknowledged through internal reporting and by notification of EPAs' National Response Center that CERCLA hazardous substances (radionuclides) had been released to the environment at the 105 K East Basin. These, and similar earlier releases from K East have served to increase DOE, EPA, and State of Washington Department of Ecology (Ecology) concerns regarding the integrity of these aging basins.  <p style="text-align: center;">(Continued on page 2)</p>		
<b>Impact of Change</b> These M-34-97-01 agreements are made in partial fulfillment of Land Disposal Restriction (LDR) treatment requirements of Agreement milestone M-26-00 (which constitutes an existing Agreement or Order for treatment of mixed waste for purposes of the Federal Facility Compliance Act of 1992 (FFCA)), and as companion documentation to LDR documents submitted by DOE pursuant to Agreement milestone M-26-00.  Approval of this change request by the Parties establishes a new major milestone, and associated interim milestones and target dates governing the removal of spent fuel, sludge and debris, basin water, and completion of Facility Transition Activities including transfer of the K-Basins to DOE's Environmental Restoration Program. On approval, Hanford site planning and budget development documents (e.g., Sitewide System Engineering control documents, Project Management Plans, and Multi Year Work Plans) will be modified accordingly.		
<b>Affected Documents</b> <b>The Hanford Federal Facility Agreement and Consent Order, as amended, and Hanford Site internal planning and budget documents (e.g., Sitewide System Engineering control documents, Project Management Plans, and Multi Year Work Plans).</b>		
<b>Approvals</b>		
_____ DOE	_____ Date	<input type="checkbox"/> Approved <input type="checkbox"/> Disapproved
_____ EPA	_____ Date	<input type="checkbox"/> Approved <input type="checkbox"/> Disapproved
_____ Ecology	_____ Date	<input type="checkbox"/> Approved <input type="checkbox"/> Disapproved

## Description/Justification of Change (continued)

The release of CERCLA hazardous substances to the environment, concerns regarding basin age and integrity, and mounting concerns regarding the hazards posed by basin contents have resulted in an agreement between the parties that accelerated removal of K East and K West Basin contents (spent nuclear fuels, sludges and debris, and basin waters) is necessary. DOE, EPA, and Ecology (the Parties) have further agreed that use of a CERCLA "removal action" is warranted in that it affords the most expeditious regulatory vehicle for ensuring removal.

**History and Basis of Agreement Negotiations:**

In early 1993, the Parties conducted initial Agreement negotiations aimed at establishing an agreed upon technical path forward that would minimize and/or eliminate continued endangerment of public health and further contamination of the environment. These negotiations culminated in the establishment of initial Agreement milestones pertaining to Hanford's K-Basins<sup>1</sup>. These milestones assumed encapsulation of K East spent nuclear fuels and sludges, and subsequent placement of these fuels and sludges into the K West spent nuclear fuel storage basins. The Parties also agreed to an interim milestone requiring the reduction of the concentration of the radionuclide tritium in K East basin water. At that time, the parties agreed that tritium constituted the principal hazardous substance of concern in basin water and posed the greatest potential risk for further release to the environment and endangerment to public health. Milestones implementing this original technical path forward were agreed upon and established by the Parties in the Agreements' Fourth Amendment. Amendment Four was approved by the Parties in January 1994.

Subsequent to finalization of Agreement Amendment Four, additional information regarding the physical character of basin contents has served to increase safety, public health, and environmental concerns, and to underscore the need for action. As a result of increased knowledge and concerns, DOE proposed a new, safer, and more technically sound path based on the removal and management of all spent nuclear fuel, sludge and debris, and water in both the K East and K West Basins. A technical analysis of the options associated with selection of a revised technical path forward was documented in a National Environmental Policy Act, Environmental Impact Statement (NEPA EIS). In May of 1995, an EIS Record of Decision (ROD) was issued documenting the new technical path forward as the preferred alternative for the management of K-Basins spent nuclear fuels. As a result of this programmatic change in direction, the parties agreed to renegotiate the existing Agreement Milestone M-34-00 series. This commitment to renegotiate was documented in Agreement Change Control Form #M-34-95-02 (March 28, 1995).

This Agreement commitment required DOE to submit a signed change request by June 30, 1996, proposing specific dates for milestones covering the removal of spent nuclear fuel and sludge, and completion of stabilization/transition activities, and for transfer of Hanford's K East and K West Basins to DOE's Environmental Restoration Program. DOE's change request was also to serve as the basis for initiating associated negotiations.

On June 26, 1996, DOE submitted its signed change request to Ecology (M-34-96-02) proposing milestones and associated commitments, and requesting that the Parties initiate K Basins negotiations. Ecology disapproved the submitted change request in its particulars on July 12, 1996, but accepted it as a basis from which to begin negotiations to develop mutually acceptable K-Basins commitments. Other agreements between the Parties regarding these negotiations may be found at: (1) their August 16, 1996, Agreement In Principle; (2) DOE's November 1, 1996, letter requesting temporary suspension of negotiations (J. D. Wagoner to M. Riveland and C. Clarke); and (3) a resulting Inter-Agency Management Integration Team (IAMIT), November 16, 1996, "Resolution of Dispute".

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Unless otherwise noted, the term "K basins" is used here to denote both K East and K West basins.

Description/Justification of Change (continued)

This (M-34-97-01) change request is a result of the Parties' negotiations. Assumptions utilized in reaching these agreements include the following:

1. An appropriate number of both enforceable major and interim milestones, and unenforceable target dates should be established so as to effectively drive each of the four phases of K East and K West Basin work, i.e., spent nuclear fuel, sludge and debris, basin water, and remaining basin transition activities.
2. DOE's K East and K West Basins are hereby classified as "key facilities" subject to Agreement Section 8 (Facility Decommissioning Process).
3. The Parties will employ a removal action under CERCLA to abate further releases, or threats of releases of hazardous substances from the basins; An Engineering Evaluation\Cost Analysis (EE/CA) followed by an Action Memorandum will document necessary removal action work to be completed at the K East and K West Basins. This K Basins EE/CA will be consistent with and constrained by these (M-34-97-01) milestones and agreements.
4. The K-Basins EE/CA will be developed by DOE in consultation with Ecology and EPA. All three agencies will approve the EE/CA prior to release for public comment.
5. The K-Basins EE/CA Action Memorandum will be approved and issued by the DOE, the EPA and Ecology.
6. Provided that DOE maintains compliance with the Action Memorandum, and the terms of this agreement, Ecology does not expect to call for submittal of a State of Washington Hazardous Waste Management Act (HWMA) Part B permit submittal for the management of the K East and K West Basins.

New (M-34-97-01) milestones and target dates (below) replace and delete the Agreements' out of date series, i.e., M-34-00, M-34-00-T02, M-34-00-T06, M-34-00-T07, M-34-00-T08, and M-34-01. Deleted milestones and targets are as follows:

<u>Milestone</u>	<u>Description</u>	<u>Due Date</u>
M-34-00	Complete actions specified by agreed interim milestones related to remediation of the K East Basins.	TBD
M-34-00-T02	Initiate K East Basin Fuel Encapsulation.	TBD
M-34-00-T06	Initiate K East Basin Sludge Encapsulation.	11/30/96*
M-34-00-T07	Complete Encapsulation of the Fuel and Sludge within K East Basin.	12/31/98*
M-34-00-T08	Remove all fuel and sludge from both K East and K West Basins in an Encapsulated form.	12/31/02*

\* Or 60-Days after Completion of Negotiations

## Description/Justification of Change (continued)

M-34-01

Contaminated K East Basin water will be removed, replaced, or treated. The timing of this action must be coordinated with encapsulation and the cleaning of the residual contamination in the basin and (as noted below) the alternative selection is dependant on the feasibility of moving encapsulated K East Basin fuel and sludge to the K West Basin. The contaminated water will be dispositioned in accordance with reasonable available Hanford Site treatment and/or disposal processes and methods, available at the time of this action. Unless a better option becomes available, the water will be trucked to C-018 for disposal.

TBD

If the K East fuel and sludge, once encapsulated, can be moved to the K West Basin (determined through a September 1994 Engineering study target date) the removal and disposal of the contaminated water shall be completed by September 2000. This date is an eighteen month action, starting in March 1999, three months after fuel and sludge encapsulation is completed. If the transfer of encapsulated K East Basin fuel and sludge to K West Basin is infeasible, contaminated K East Basin water will be replaced by fresh water, starting in September, 1996 at a rate of two million gallons/year and will continue until such time that the tritium concentration in the basin is decreased and is maintained at or below 300,000 pCi/L (the goal is to reduce the tritium concentration in the basin such that resulting groundwater tritium concentration meet drinking water concentration standards, recognizing a lag between basin and groundwater concentrations).

The new M-34-00A major milestone series established by this M-34-97-01 agreement is as follows:

<u>Milestone</u>	<u>Description</u>	<u>Due Date</u>
M-34-00A	Complete K East and K West Basin Facility Transition Phase and Initiate the Surveillance and Maintenance Phase.	12/31/05
	Completion of activities under this major milestone includes the completion of removal of spent fuels, sludge and debris, and water, and all other facility transition phase activities up to and including transfer of the K East and K West Basins to DOE's Environmental Restoration Program and initiation of the Surveillance and Maintenance phase.	

Description/Justification of Change (continued)

**M-34-03**                    **Submit completed Engineering Evaluation/Cost Analysis (EE/CA) to Ecology and EPA for approval. This EE/CA will analyze alternatives to remove K East and K West Basin hazardous substances in a manner fully consistent with these (M-34-97-01) milestones and commitments.**                    **6/30/97**

**The K Basins' EE/CA will be developed following the standard format for such documents and in accordance with associated regulatory requirements of the National Contingency Plan. The K Basins' EE/CA shall contain detailed schedules for initiating and completing activities required for the removal of hazardous substances from K Basins spent fuels, sludge and debris, and water; as required by milestones and target dates M-34-04-T01 through M-34-20.**

**The scope of the K Basins EE/CA and removal action does not include subsequent processing, treatment, and management of these substances. Such processing, treatment, and management will be conducted in accordance with applicable requirements.**

**Sludge and Debris**

**M-34-04-T01**                    **Issue Revision B of the Preliminary Safety Assessment for the transfer of K East Basins sludge.**                    **5/31/97**

**M-34-05**                    **Submit DOE approved annual report on quantities, character, and management (e.g., segregation and management subsequent to removal) of K Basins debris to Ecology and EPA. Final report of this series shall be the one occurring one year after SNF Project Completion.**                    **Annually beginning 5/31/97**

**M-34-06-T01**                    **Initiate K West canister cleaning operations.**                    **6/30/98**

**This activity will consist of removal of all contents from each canister and processing of the canisters through the radioactive decontamination apparatus.**

**M-34-07-T01**                    **Complete final safety basis for the transfer of K Basins sludge.**                    **1/31/00**

**Provide to Ecology and EPA the DOE approved: 1) K Basin Safety Analysis Report (SAR) update; 2) storage facility SAR or SAR modification; and, 3) Safety Analysis Report for Packaging (SARP) authorizing the transfer of K Basins sludge.**

Description/Justification of Change (continued)

- M-34-08**            **Initiate full scale K East Basins sludge removal.**            **9/30/00**
- This milestone will be met when DOE completes and approves K East sludge removal definitive design documents, all associated construction, and readiness assessments.**
- M-34-09-T01**       **Complete K Basins debris removal.**            **2/28/01**
- This target date will be met when DOE completes K East and K West Basin debris removal in a manner meeting DOE approved transition criteria.**
- M-34-10**            **Complete sludge removal from K Basins.**            **8/31/01**
- This milestone will be met when DOE completes K East and K West Basin floor, pit, and canister sludge removal in a manner meeting DOE approved transition criteria.**

**SNF Project Turnover Criteria**

- M-34-11-T01**       **Issue DOE approved K Basins (SNF Project) Transition Turnover Criteria document to Ecology and EPA.**            **12/31/97**

**Spent Fuel**

- M-34-12-T01**       **Complete Spent Fuel Operational Readiness Review.**            **5/31/98**
- This target date will be met when the Spent Fuel Operational Readiness Review (ORR) is successfully completed and startup approval is granted by the Manager, RL. The objective of the ORR is to demonstrate that it is safe to start, or restart, applicable facilities and processes.**
- M-34-13-T01**       **Complete construction of K West Basin integrated water treatment system.**            **12/31/97**
- This target date will be met when the K West Basin integrated water treatment system has been constructed, installed, and acceptance test(s) have been completed in accordance with the acceptance test plan.**

Description/Justification of Change (continued)

- |                    |  |                 |
|--------------------|--|-----------------|
| <b>M-34-14-T01</b> | <b>Complete construction of K East Basin integrated water treatment system.</b>  | <b>12/31/98</b> |
|                    | <p>This target date will be met when the K East Basin integrated water treatment system has been constructed, installed, and acceptance test(s) have been completed in accordance with the acceptance test plan.</p>   |                 |
| <b>M-34-15-T01</b> | <b>Initiate Removal of K West Basin Spent Fuel.</b>  | <b>5/31/98</b>  |
|                    | <p>Removal of Spent Fuel will begin in the K West Basin. In order for this target date to be met, the Cold Vacuum Drying (CVD) Facility and Canister Storage Building (CSB) will be ready to receive spent fuel, the spent fuel transport system will be operable and the K West Basin spent fuel retrieval system will begin retrieving, cleaning, packaging and removing spent fuel.</p> |                 |
| <b>M-34-16</b>     | <b>Initiate Removal of K East Basin Spent Fuel</b>   | <b>2/28/99</b>  |
|                    | <p>This interim milestone will be met when the K East Basin spent fuel retrieval system begins retrieving, cleaning, packaging and removing spent fuel for transport to the Cold Vacuum Drying Facility.</p>   |                 |
| <b>M-34-17-T01</b> | <b>Complete construction and installation of K East and K West Basins Spent Fuel Retrieval Systems.</b>  | <b>9/30/98</b>  |
|                    | <p>This target date will be met when both the K East and the K West Basins spent fuel retrieval systems have been constructed, and installed, as indicated by approval of the Acceptance of Construction Form by the SNF Project.</p>  |                 |
| <b>M-34-18</b>     | <b>Complete Removal of K East and K West Basins Spent Fuel.</b>  | <b>7/31/00</b>  |
|                    | <p>This milestone will be met when all spent fuel stored in DOE's K East and K West Basins has been removed in a manner meeting criteria established within the SNF project transition criteria document.</p>  |                 |

**Basin Water Remediation**

- |                |   |                |
|----------------|---|----------------|
| <b>M-34-19</b> | <b>Initiate removal, replacement, or treatment of contaminated K East Basin waters such that the tritium concentration in the basin is decreased and is maintained at or below 300,000 pCi/L.</b> | <b>7/31/00</b> |
|----------------|---|----------------|

Description/Justification of Change (continued)

SNF Project Completion

M-34-20            **Complete: 1) removal, replacement, or treatment of contaminated K East Basin waters such that the tritium concentration in the basin is decreased and is maintained at or below 300,000 pCi/L; and, 2) transfer of K East and K West Basins to DOE's Facility Transition Program in accordance with DOE approved (SNF project) Transition Turnover Criteria document (See M-34-11-T01).**            **9/30/01**

K East and K West Basins Facility Transition Milestones

M-34-21            **Submit a draft Project Management Plan for K East and K West Basins prepared in a manner consistent with Agreement Action Plan Section 8.0.**            **6/30/01**

M-34-22            **Submit DOE approved K East and K West Basins End Point Criteria to Ecology for approval in part consistent with Agreement Action Plan Section 8.0. The end point criteria document will become part of the Project Management Plan.**            **6/30/01**

M-34-23            **Submit DOE approved K East and K West Basins Pre-closure Work Plan(s) to Ecology for approval. The Pre-closure Work Plan(s) will include the proposed end point criteria and Surveillance and Maintenance (S&M) Plan(s) and will identify any hazardous substances/ dangerous wastes proposed to remain in place.**            **12/31/01**

M-34-24            **Submit DOE approved K East and K West Basins Surveillance and Maintenance Plan to Ecology for approval in part consistent with Agreement Action Plan Section 8.0.**            **6/30/02**

M-34-25            **Submit proposed final K East and K West Basins Project Management Plan(s) to Ecology for approval in part consistent with Agreement Action Plan Section 8.0.**            **6/30/02**

K West Basin Transition

M-34-26            **Complete K West Basin deactivation.**            **12/31/05**

M-34-27            **Initiate full scale K West Basin water removal.**            **3/31/03**

**The start date for the removal of water from the K West Basin will be six months following approval by Ecology of the 105 K West End Point Criteria document.**



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## Agreement in Principle

### Hanford Federal Facility Agreement and Consent Order Negotiation of Commitments for the Completion of Stabilization at Hanford's K Basins

In 1993, the U.S. Department of Energy (DOE), the U.S. Environmental Protection Agency (EPA) and the Washington State Department of Ecology (Ecology) engaged in negotiations culminating in the Fourth Amendment to the Hanford Federal Facility Agreement and Consent Order (Agreement). Amendment Four was approved by the three parties in January 1994. Among the commitments established, Milestone M-34-02 required DOE to submit a signed change request, by June 30, 1996, proposing milestones for the removal of fuel and sludge and completion of stabilization of Hanford's K East and K West Basins (the K Basins).\* This change request, per the requirements of interim milestone M-34-02, was also to serve as a basis to initiate negotiations on these commitments.

On June 26, 1996, DOE submitted a signed change request to Ecology (M-34-96-02) proposing milestones and associated commitments and requesting that the Parties initiate K Basin negotiations. On July 12, 1996, Ecology disapproved the submitted change request in its particulars, but accepted it as a basis from which to begin negotiations to develop mutually acceptable commitments for the K Basins.

The parties have entered into this Agreement in Principle (AIP) in order to establish the expectations and requirements for the conduct of negotiations.

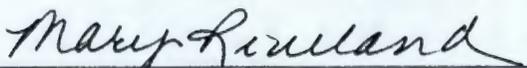
Therefore, the Parties agree to the following:

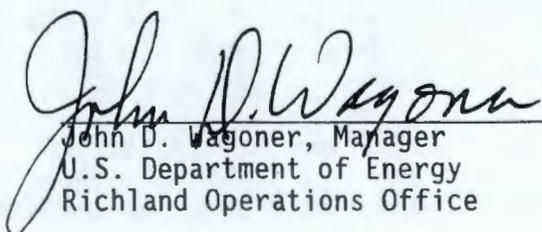
1. To enter into negotiations for the purpose of establishing Agreement commitments for the removal of K East and K West Basin fuel, sludge and debris, remediation and associated activities necessary for the management of K Basin waters, and the completion of stabilization of the K Basins. As part of these negotiations the parties agree to establish a specific M-34-00 end date for completion of all stabilization activities.

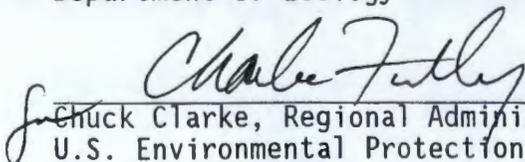
\* This change request submittal was to be consistent with the Environmental Impact Statement Record of Decision for the "Management of Spent Nuclear Fuel from the K Basins at the Hanford Site, Richland, Washington," (DOE\EIS-0245F, January 1996.)

2. To defer the near term commitment contained within existing interim Milestone M-34-01 requiring the replacement of K East Basin water with "...fresh water starting in September 1996 at a rate of two million gallons/year...". This deferment is necessary in order to allow a reasonable time frame to complete the negotiation of an acceptable path forward. All other Agreement commitments under interim Milestone M-34-01 (and other M-34-00 series milestones and targets until replaced) remain in effect.
3. That negotiations shall commence in August 1996, and shall be completed no later than November 1, 1996. A weekly schedule of times and locations of negotiation activities shall be established by agreement of the parties as necessary after the first negotiation session. The successful conclusion of negotiations shall be followed by an appropriate public comment period of not less than 45 days.
4. That releases to groundwater of hazardous substances subject to CERCLA have been documented at Hanford's K East Basins, and that upon generation (to be established by the negotiations) K Basin sludge shall be managed as dangerous waste pursuant to Chapter 173-303 WAC.
5. That Ecology, as the designated Lead Regulatory Agency for these negotiations, agrees to keep EPA, as the designated support regulator, appropriately and currently informed regarding all pertinent aspects of the negotiations. DOE agrees to provide any assistance as requested to support Ecology in providing briefings or documentation to EPA. The Parties further agree to cooperate in providing periodic briefings to the State of Oregon, affected Indian Nations, the Hanford Advisory Board, and other stakeholders as appropriate.
6. That these negotiations stand in lieu of the dispute resolution process as established in the Agreement, and DOE agrees to suspend its invocation of dispute regarding the disapproval of change request M-34-96-02 pending the successful conclusion of these negotiations. If the parties are not able to resolve all issues in the negotiations, any unresolved matters, including those raised in the current invocation of dispute, shall be referred for resolution under Article VIII of the Agreement. The disputed issues will be immediately referred to the IAMIT level of the dispute resolution process.

Signed this 16 day of August 1996.

  
Mary Riveland, Director  
State of Washington  
Department of Ecology

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

  
Chuck Clarke, Regional Administrator  
U.S. Environmental Protection Agency  
Region X



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

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Environmental Cleanup Office

97-EAP-066

Ms. Mary Riveland, Director  
State of Washington  
Department of Ecology  
P.O. Box 47600  
Olympia, Washington 98504-7600

Mr. Chuck Clarke  
Regional Administrator  
U.S. Environmental Protection Agency  
Region 10  
1200 Sixth Avenue  
Seattle, Washington 98101

Dear Ms. Riveland and Mr. Clarke:

U.S. DEPARTMENT OF ENERGY, RICHLAND OPERATIONS OFFICE (RL) REQUEST TO SUSPEND NEGOTIATIONS ON MILESTONE M-34 OF THE HANFORD FEDERAL FACILITY AGREEMENT AND CONSENT ORDER (TRI-PARTY AGREEMENT) THROUGH JANUARY 14, 1997

I am requesting your agreement to suspend negotiations currently underway on Milestone M-34 of the Tri-Party Agreement. As you may recall, we approved an Agreement In Principle (AIP) on August 16, 1996, to renegotiate the existing M-34 Tri-Party Agreement milestone series. Our objective was to appropriately reflect the preferred technical path forward for resolution of critical public health and safety concerns and to reduce risks to the environment and to public health, through the removal of the spent nuclear fuel, sludge and debris, and contaminated water from the 100 K East and West spent nuclear fuel storage basins. The AIP deferred the initiation of K East basin water replacement in September 1996 (See Interim Milestone M-34-01), and established November 1, 1996, for completion of negotiations.

Notwithstanding the importance of this commitment, our respective agencies have been unable to reach full closure on this matter. However, I have been advised that our negotiation teams have made substantial progress towards agreement on specific project commitments for a path forward which will be established as Tri-Party Agreement milestones. This inability to reach agreement has been brought about because RL does not feel that at present we have been able to commit to mutually agreeable dates as we continue to be constrained by a critical need for a reassessment of the spent nuclear fuels project technical baseline by our new integrating contractor Fluor Daniel Hanford Inc. (FDH). Additionally, there are a number of project technical issues having safety implications, e.g., potential pressurization of Multi Canister Overpacks which require resolution.

NOV 1 1996

Based on the recommendation of my negotiation team and RL senior management, I am requesting that we suspend these negotiations through January 14, 1997. At that time I propose that our (August 1996) AIP be reinstated with a new end date of no later than March 14, 1997, and that our negotiators be instructed to reinstate negotiations using RL's October 25, 1996, draft change request (M-34-96-03) as the basis for proceeding. I am also requesting your approval that:

1. This proposed modification of our August 1996 AIP also serves to continue deferral of noted M-34-01 requirements until completion of negotiations, and
2. In the interim (prior to receipt of the FDH baseline reassessment) our staffs continue to meet on two specific negotiation related issues: (1) potential Toxic Substances Control Act (TSCA) implications associated with Polychlorinated Biphenyl (PCB) contaminated sludge in the K East Basin, and (2) the feasibility of utilizing a Comprehensive Environmental Response Compensation and Liabilities Act (CERCLA) removal action as a regulatory Tri-Party Agreement pathway.

Tri-Party Agreement negotiations under Milestone M-34 can be concluded by March 14, 1997, based on contractual performance agreements which we have established within the scope of the FDH contract. As a result of uncertainties in the existing spent nuclear fuels project baseline, FDH is to provide RL with an assessment of the achievability of the current project schedule. This assessment will be formally provided to RL by December 31, 1996. On February 1, 1997, RL will have completed its analysis of the FDH assessment and is committed to finalize with EPA and Ecology the necessary target and enforceable dates for the technical commitments which are being negotiated for Milestone M-34. I am confident that completion of this assessment and continued efforts to resolve outstanding project technical/safety issues will allow us to successfully complete negotiations on this project.

In response to a request by EPA and Ecology negotiation teams, I am providing via this letter an overview of other existing commitments which extend beyond the regulatory scope of the Tri-Party Agreement but which apply directly to the spent nuclear fuels project. Finally, per agreement between our negotiators, I am also providing a synopsis of RL's understanding of the regulatory strategy which has been used in constructing the Tri-Party Agreement change control form.

RL Commitments for Completion of the M-34 Negotiations

1. RL remains committed to the Secretary of Energy's Spent Nuclear Fuels Vulnerability Assessment issued in October 1994. This document issued by the National Spent Nuclear Fuels Program Office and signed by Secretary Hazel O'Leary places the highest priority for RL on removal of spent nuclear fuel stored in the 100 K East and West Basins away from the Columbia River and into safe interim storage pending final disposal in the National Geologic Repository.
2. RL is fully committed to meet the existing technical commitments and milestone dates made to the Defense Nuclear Facilities Safety Board (DNFSB) and documented in DNFSB Finding 94-1. The major commitments include a specified start and completion date for the removal of spent nuclear fuel from the K East and West Basins and the removal and disposal of sludge and debris which has accumulated in the K Basins as a result of the deterioration of the spent nuclear fuel. RL also remains committed to other technical and safety milestones which have been negotiated with the board.
3. RL is committed to minimize and where possible eliminate risks to the environment and the public health resulting from spent nuclear fuel, sludge and debris, and contaminated water contained within the 100 K East and West Basins. In recognition of these impacts, RL is committed to negotiate enforceable and target milestones in the Tri-Party Agreement: 1) covering each of these three phases (assuming the project is completed under CERCLA removal authority); and, 2) to complete Facility Transition in accordance with Section 8 of the Tri-Party Agreement.

Regulatory Strategy

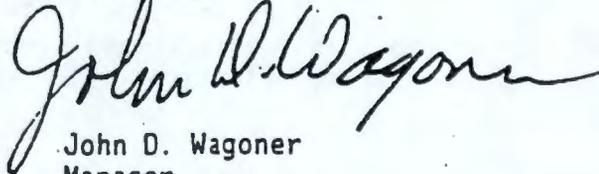
It is RL's position that the most appropriate regulatory basis for revising Milestone M-34 of the Tri-Party Agreement is under the CERCLA. This conclusion is based upon the following:

RL has documented loss of water from the 105 K East Basin where spent nuclear fuel is being stored. Operational monitoring data has confirmed that the basin water was and is contaminated with concentrations of radionuclides which exceed public health and environmental protection standards established by the EPA for hazardous substances as defined by CERCLA. RL has acknowledged through its internal reporting requirements and to EPA's National Response Center that CERCLA hazardous substances (radionuclides) have been released to the environment at the 105 K East Basin.

RL, EPA, and Ecology are currently analyzing the feasibility of utilizing a CERCLA removal action as a regulatory vehicle under the Tri-Party Agreement for addressing spent nuclear fuel, sludge and debris, and water removal/remediation activities at Hanford K Basins. Should utilization of a removal action prove viable, RL agrees that the resulting Engineering Evaluation/Cost Analysis (EE/CA) will be reflective of and constrained by the parties' negotiated set of M-34 milestones.

I would appreciate your approval of the suspension and my specific request as documented at the top of page 2, items 1 and 2 by so indicating with your signature below. Should you have any questions on this matter, please contact me or your staff may contact Beth Sellers of the Spent Nuclear Fuels Project Division on (509) 376-7465.

Sincerely,

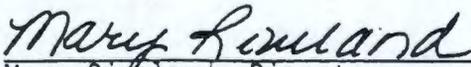


John D. Wagoner  
Manager

EAP:FRM

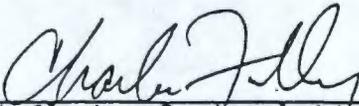
Attachment

Approved:



Mary Riveland, Director  
State of Washington  
Department of Ecology

12/11/96  
Date



for Chuck Clarke, Regional Administrator  
U.S. Environmental Protection Agency  
Region X

12-16-96  
Date

- cc: Larry Arnold, FDH
- Mary Lou Blazek, ODOE
- Bill Burke, CTUIR
- Russell Jim, YIN
- Kevin Oates, EPA
- Donna Powaukee, Nez Perce
- Marilyn Reeves, HAB
- Dan Silver, Ecology
- Randy Smith, EPA
- Nancy Williams, FDH
- Mike Wilson, Ecology

\* See intervening agency correspondence on this matter, i.e., (1) letter, Mary Riveland and Chuck Clarke to John D. Wagoner, 11/12/96, and (2) Inter-Agency Management Integration Team (IAMIT) Dispute Resolution Agreement, 11/18/96.



INTER-AGENCY MANAGEMENT INTEGRATION TEAM  
-RESOLUTION OF DISPUTE-

Hanford Federal Facility Agreement and Consent Order

Negotiation of Commitments for the Completion of Transition at Hanford's K East and K West Basins

On August 16, 1996, the U. S. Department of Energy (USDOE), the U. S. Environmental Protection Agency (EPA), and the Washington Department of Ecology (Ecology), hereinafter the Parties, approved their Agreement In Principle (AIP) to conduct negotiations for the purpose of establishing Hanford Federal Facility Agreement and Consent Order (Agreement) milestones governing cleanup at Hanford's K East and K West basins. Milestones to be established are to be sufficient to drive the removal of basin fuels, sludge and debris, and contaminated waters, and the completion of basin transition.

The Parties' AIP called for completion of these negotiations no later than November 1, 1996. As of November 2, 1996, negotiations had not been completed, and under the terms of the Parties' AIP, the Agreement Dispute Resolution process was automatically invoked at the "IAMIT" level pursuant to Article VIII. Since that time our staffs have worked with one another in order to develop an equitable resolution to this dispute. USDOE, EPA, and Ecology have subsequently agreed to temporarily suspend active negotiations. These negotiations will resume in accordance with the Parties' August 6, 1996 AIP on January 14, 1997. Negotiations will resume utilizing USDOE's October 25, 1996 draft change request (M-34-96-03) as a starting point, and will be completed no later than March 14, 1997.

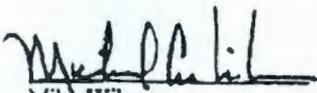
In recognition of these commitments USDOE, EPA, and Ecology's IAMIT representatives agree to the following additional commitments as conditions for the resolution of this dispute:

THAT AMONG ISSUES TO BE RESOLVED DURING THE PARTIES' (JANUARY 14, 1997 - MARCH 14, 1997) NEGOTIATIONS ARE THE FOLLOWING:

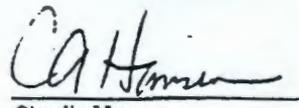
- Selection and Documentation of regulatory pathway(s) necessary to meet Agreement and AIP terms, and
- That should the Parties utilize a "CERCLA" removal action as a regulatory driver of K basin fuels, sludge and debris, basin water, and other basin transition activities, they will identify Engineering Evaluation / Cost Analysis (EE/CA) scope and design elements, provided that such elements are reflective of and constrained by the Parties' negotiated milestones and agreements (See J. D. Wagoner letter of November 1, 1996).

In addition to the preceding, USDOE, EPA, and Ecology recognize that should a CERCLA removal action be undertaken, the resulting Action Memorandum will be consistent with options considered within the EE/CA, and shall give appropriate consideration to public comments received. Both EE/CA and Action Memorandum documents will be approved by USDOE, EPA, and Ecology prior to issuance.

In view of the above commitments, the members of the Parties' IAMIT agree that this dispute is resolved.

  
Mike Wilson  
WA Department of Ecology

  
Doug Sherwood  
Environmental Protection Agency

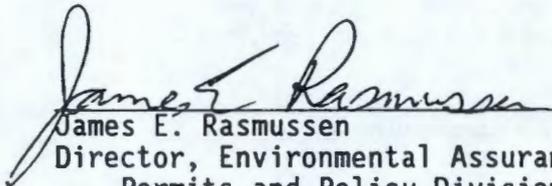
  
Charlie Hansen  
U. S. Department of Energy

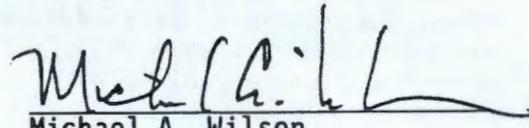


14 DAY EXTENSION TO HANFORD FEDERAL FACILITY AGREEMENT AND CONSENT ORDER  
MILESTONE M-34-00 DISPUTE RESOLUTION

On March 14, 1997 the U.S. Department of Energy, and the State of Washington Department of Ecology had not yet concluded negotiations on Milestone M-34-00. Under the terms of the Agreement In Principle then in effect the Agreement dispute underlying the negotiations was automatically elevated to the Inter Agency Management Integration Team (IAMIT) for resolution. Since March 14, 1997 negotiations were concluded however, final documentation was not placed into effect. This extension of the period for the IAMIT to resolve the underlying dispute is necessary to execute the appropriate documentation.

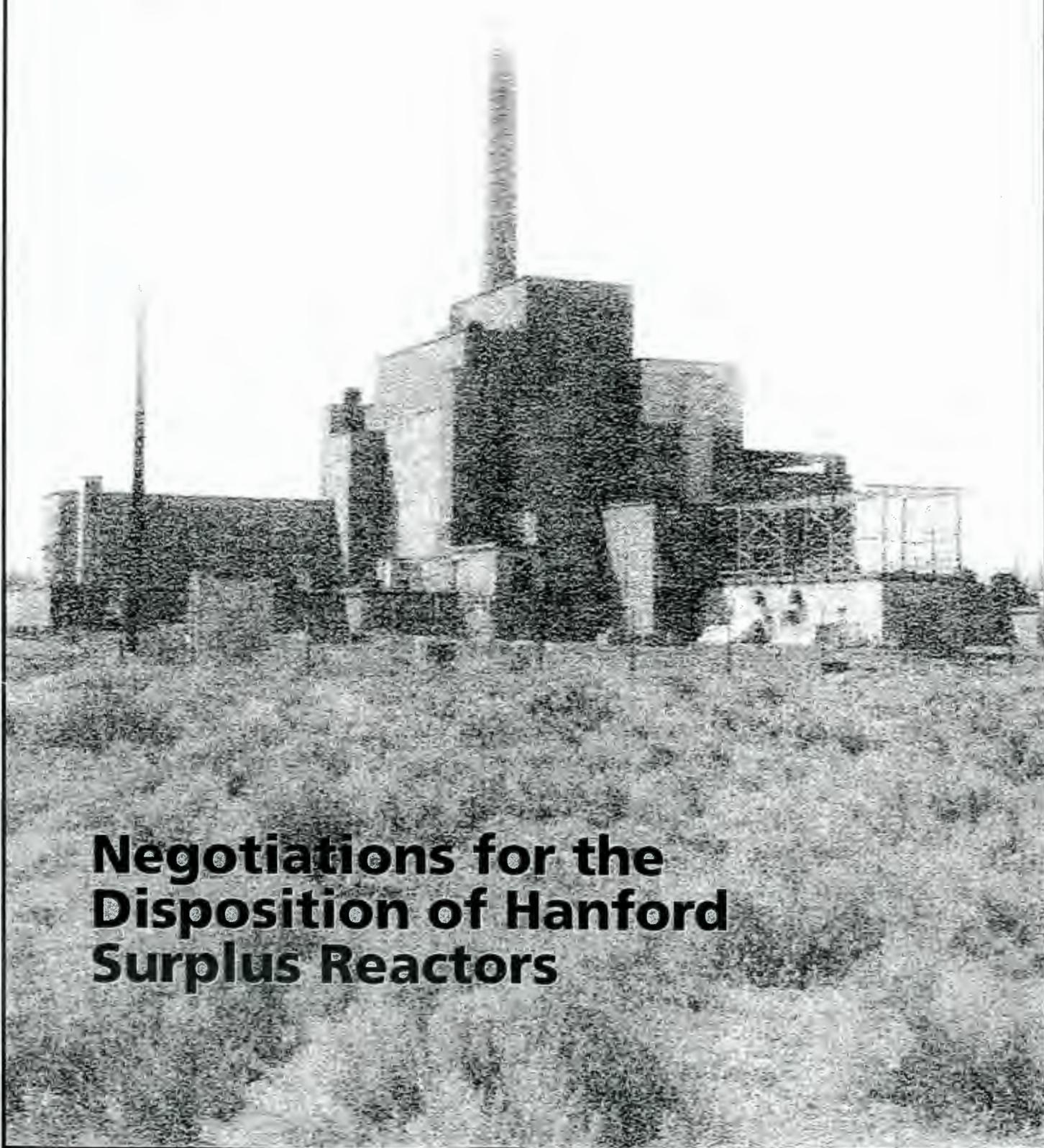
Therefore, the dispute resolution period in which the IAMIT would seek resolution of this dispute is extended 14 days to April 18, 1997.

  
James E. Rasmussen  
Director, Environmental Assurance,  
Permits and Policy Division  
U. S. Department of Energy  
Richland Operations Office

  
Michael A. Wilson  
Manager, Nuclear Waste Program  
State of Washington  
Department of Ecology

# Hanford Federal Facility Agreement and Consent Order

Section B: DISPOSITION OF  
HANFORD SURPLUS  
REACTORS (M-93-00)



**Negotiations for the  
Disposition of Hanford  
Surplus Reactors**

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Tentative Agreement on  
Hanford Federal Facility Agreement and Consent Order  
Negotiations for the Disposition of Hanford Surplus Reactors

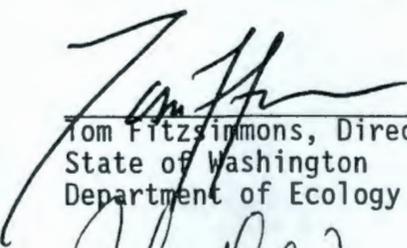
In December of 1996, the U.S. Department of Energy, the State of Washington Department of Ecology and the U.S. Environmental Protection Agency (the parties) agreed to enter into negotiations on matters relating to the completion of the Hanford surplus production reactors final facility disposition. This agreement was followed by negotiations which established a new major milestone series, M-93-00, within the Hanford Federal Facility Agreement and Consent Order (Agreement). The parties also agreed to associated modifications of Agreement Section 8.0 (Facility Decommissioning Process), and Agreement Appendix A, Definitions of Terms and Acronyms.

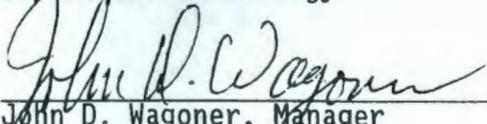
Pursuant to the parties Agreement in Principle (December 31, 1996), the parties have concluded initial surplus reactor negotiations and have reached tentative agreement. A summary and copy of this agreement is attached.

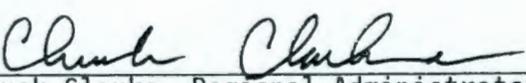
This tentative agreement will be submitted for public review and comment for a 45 day period. Copies of this agreement will also be available for review at the parties' public information repositories. Following the 45 day public comment period, the parties will make appropriate revisions before final agreement. The specific public comment period dates will be coordinated to ensure Hanford Advisory Board opportunity for review and comment. Prior to final agreement, a response to comments document will be issued. The parties anticipate that final signatures will take place by August 31, 1997.

The parties further agree that to minimize additional delay in the event they fail to agree on any changes as the result of public comment, all unresolved matters shall be referred to the Agreement dispute resolution process beginning at the Inter Agency Management Integration Team (IAMIT) level as described in the Agreement. The parties shall attempt to resolve the dispute(s) as provided for in Agreement paragraph(s) 30 and/or 59.

Signed this 30th day of April 1997

  
Tom Fitzsimmons, Director  
State of Washington  
Department of Ecology

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

  
Chuck Clarke, Regional Administrator  
U.S. Environmental Protection Agency  
Region 10





# Changes Proposed to Hanford's Tri-Party Agreement Negotiations for Disposition of Hanford Surplus Reactors

U.S. Department of Energy • U.S. Environmental Protection Agency • Washington State Department of Ecology

## REQUEST FOR PUBLIC COMMENT

The U. S. Department of Energy (DOE), the U.S. Environmental Protection Agency, and the Washington Department of Ecology (Tri-Parties) are seeking public comment on proposed modifications to the Tri-Party Agreement. These proposed modifications document agreed to work schedules which will govern the decommissioning and final disposal of DOE's nine surplus reactors along the Columbia River. **Public comments will be accepted from June 9 to July 23, 1997.**

**To request a copy of the document, or to submit comments either written or electronically, please contact:**

**George Sanders**

U.S. Department of Energy

P.O. Box 550 (A5-15)

Richland, WA 99352

(509) 376-6888

E-Mail: george\_h\_sanders@rl.gov

## BACKGROUND

Along the Columbia River, in Hanford's 100 Area, are nine reactors that produced plutonium for the nation's defense programs (identified as C, F, B, D, DR, H, KE, KW, and N). The oldest of these, the B Reactor, was placed on the National Register of Historic Places in 1992, and may be retained as a national engineering landmark or museum. With the exception of N Reactor, which was retired from service in 1989, DOE's reactors had all been shut down by 1971.

In 1993, DOE issued its Environmental Impact Statement Record of Decision for Decommissioning of Eight Surplus Reactors. This documented DOE's selected alternative of interim safe storage followed by one-piece reactor core removal to the interior of the Hanford Site for disposal. DOE's Record of Decision excluded N Reactor, which had not yet been formally shut down. The Tri-Parties have subsequently agreed that N Reactor will follow a similar path.

In early 1994, the Tri-Parties agreed to negotiate necessary reactor cleanup and removal schedules by December, 1996. A November, 1996, agreement in principle extended the negotiation deadline to March 31, 1997.

During the Tri-Parties' negotiations, the disposition of the reactors was divided into two phases. **Phase One:** Interim Safe Storage. Interim safe storage consists of ensuring that facility hazardous substances are, and will remain, safe and secure for an extended period of time until final disposition of the reactor cores. The exterior of the reactor building will be removed to the primary reactor shield wall and sealed,

such that the facility can be maintained in an environmentally safe and secure condition. **Phase Two:** Final disposition. Final disposition will consist of removal of the reactor cores.

Wastes generated during phases one and two will be removed to meet established cleanup requirements pertaining to the Columbia River shoreline (Hanford's 100 Area). The Tri-Parties expect that resulting wastes will be disposed of at DOE's Environmental Restoration Disposal Facility located in the interior 200 Area of the Hanford Site. The reactor cores will be placed in a disposal facility (to be determined) in the 200 Area.

In the years since DOE's reactors were shut down, surveillance and maintenance has continued at all of them, and some decontamination and decommissioning work has been initiated. C Reactor is currently being put into interim safe storage as a large scale technology demonstration project. During this project, all C Reactor ancillary facilities will be removed. On completion, all that will remain is the reactor core and shield wall. A new long-life roof will be installed over the shield wall/reactor core building. During this demonstration project a wide range of decommissioning technologies aimed at reducing costs, enhancing worker safety and the long term integrity of the remaining structure will be tested.

## PROPOSED CHANGES

Key elements of the Tri-Parties' proposed changes include the following:

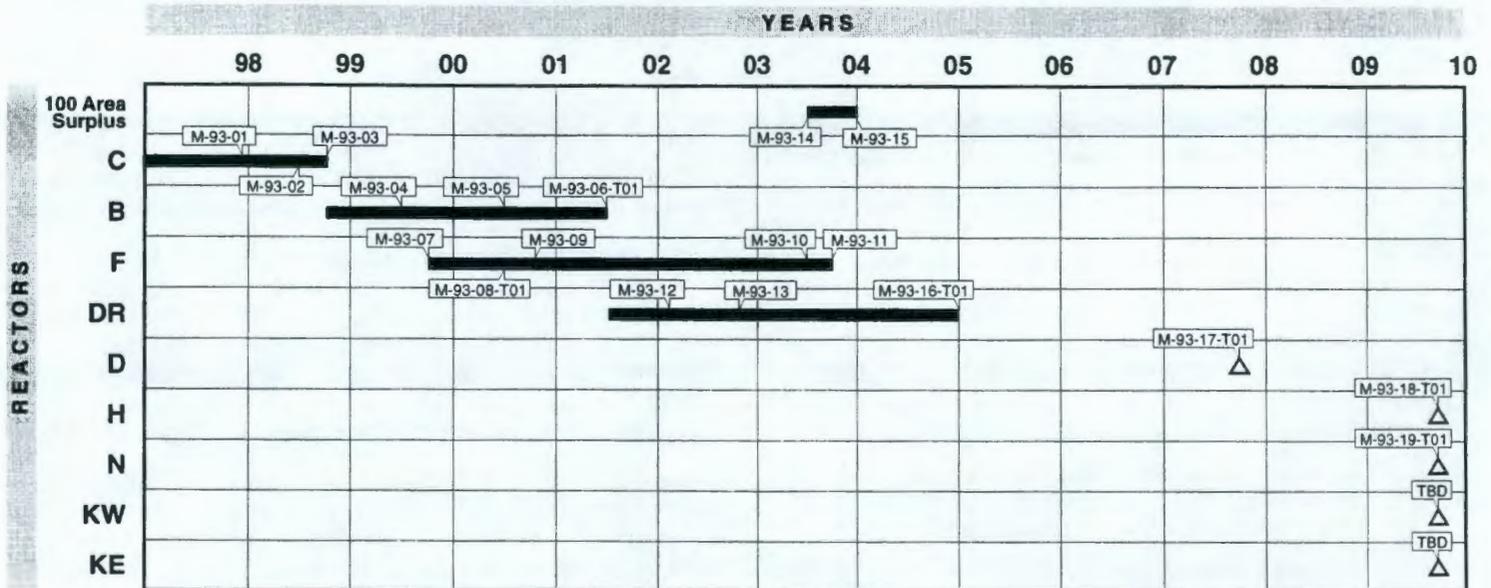
- ▲ Milestones are established requiring the completion of all activities necessary to place C Reactor facilities in interim safe storage. (September 1998)
- ▲ Milestones are established requiring the completion of all activities necessary to place F Reactor facilities in interim safe storage. (September 2003)
- ▲ An interim milestone for DR Reactor is established requiring issuance of a competitive procurement initiative. Initiative objectives include, but are not limited to, reassessing reactor environmental impact statement record of decision assumptions, and private sector state of the art decommissioning technologies. This information will aid the Tri-Parties in making course adjustments, and in determining whether or not the Tri-Parties should continue on an interim safe storage path (reactor by reactor), or move directly to final disposition. (October 2002)
- ▲ Interim milestones are established supporting decision processes regarding the future of B Reactor. (June 2000)
- ▲ A commitment between the Tri-Parties is established to complete negotiation of remaining reactor disposition schedules. (December 2003)

*(continued on back)*

▲ Section 8.0 of the Tri-Party Agreement is modified to more accurately describe decommissioning of Hanford Site key facilities. The reactor buildings are proposed for classification as key facilities.

▲ Definitions for the terms interim safe storage and final disposition are proposed for addition to the Tri-Party Agreement, Appendix A.

## PROPOSED 100 AREA SURPLUS REACTOR NEGOTIATIONS MILESTONES



E9704102

M-93-01	Submit recommendation for final disposition of 105-C Fuel Storage Basin to EPA for approval.	M-93-12	Issue 105-DR disposition competitive procurement package for ascertaining the most effective and efficient approach to FEIS ROD selected alternative implementation.
M-93-02	Submit 105-C Surveillance and Maintenance Plan for EPA approval in part.	M-93-13	Initiate Characterization and Design of ISS for the 105-DR reactor.
M-93-03	Complete 105-C Reactor Interim Safe Storage Large-Scale Demonstration Project.	M-93-14	Initiate negotiation of remaining surplus reactor disposition schedules.
M-93-04	Submit 105-B hazards assessment and characterization report to EPA.	M-93-15	Complete negotiation of remaining surplus reactor disposition schedules.
M-93-05	Issue B Reactor Phase II Feasibility Study Engineering Design Report for public comment.	M-93-16-T01	Complete 105-DR Reactor Interim Safe Storage.
M-93-06-T01	Submit B Reactor Surveillance and Maintenance Plan for EPA approval in part.	M-93-17-T01	Complete Interim Safe Storage for the 105-D Reactor.
M-93-07	Initiate 105-F ISS characterization and design.	M-93-18-T01	Complete Interim Safe Storage for the 105-H Reactor
M-93-08-T01	Submit 105-F hazards assessment and characterization report to EPA.	M-93-19-T01	Complete 105/109N Reactor ISS design.
M-93-09	Initiate 105-F ISS field activities.	M-93-20-T01	Complete 105-N Interim Safe Storage. (TBD)
M-93-10	Submit 105-F Surveillance and Maintenance Plan for EPA approval in part.	M-93-21-T01	Complete 105-KW Interim Safe Storage. (TBD)
M-93-11	Complete 105-F Interim Safe Storage.	M-93-22-T01	Complete 105-KE Interim Safe Storage. (TBD)

### FOR MORE INFORMATION ON THE PARTIES' PROPOSED MODIFICATIONS, PLEASE CONTACT:

**Roger Stanley**  
Washington State  
Department of Ecology  
P.O. Box 47600  
Olympia, WA 98504-7600  
(360) 407-7108

**George Sanders**  
U.S. Department of Energy  
P.O. Box 550 (A5-15)  
Richland, WA 99352  
(509) 376-6888

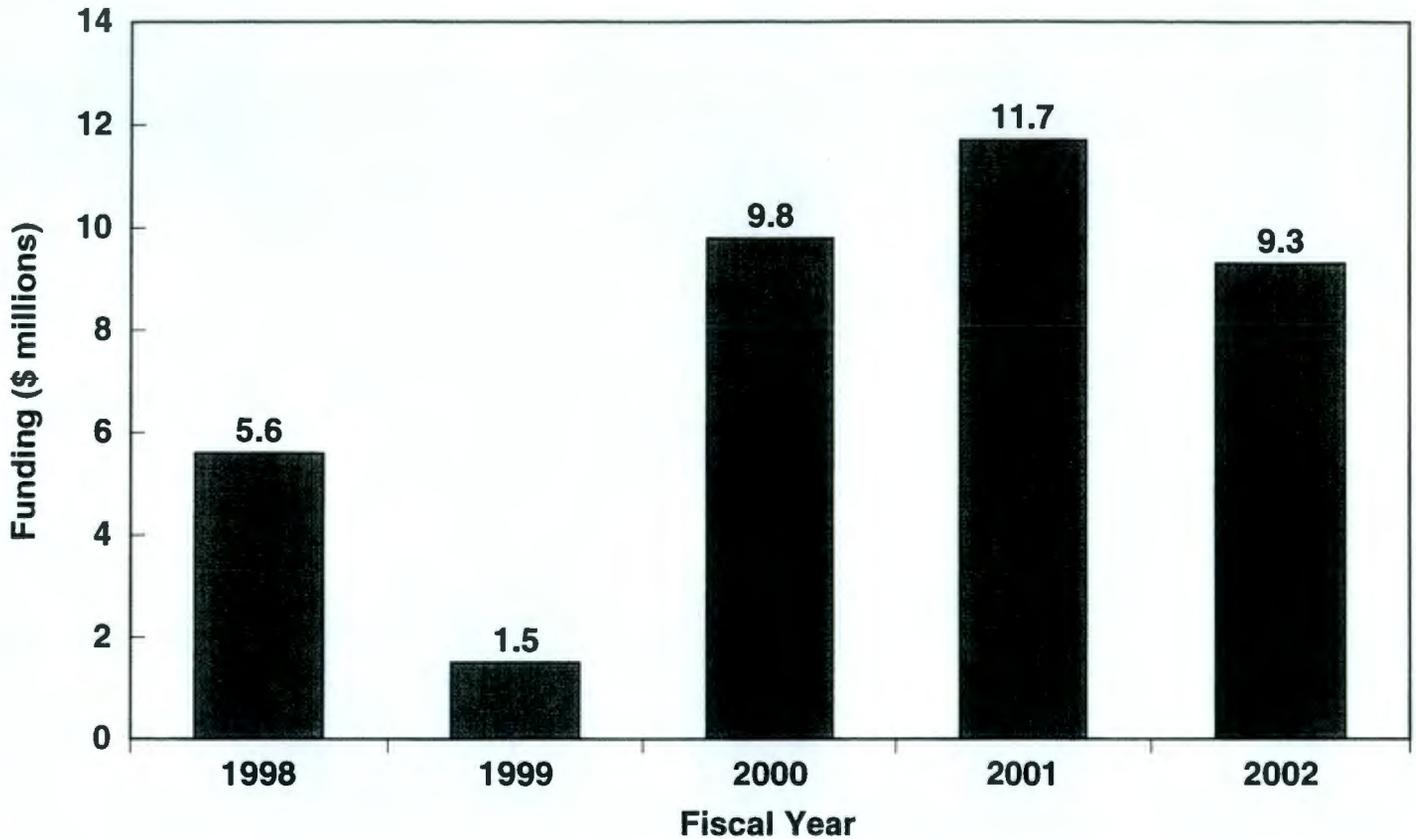
**Doug Sherwood**  
U.S. Environmental  
Protection Agency  
712 Swift Boulevard,  
Suite 5  
Richland, WA 99352  
(509) 376-9529

Also, you may call the  
Hanford Cleanup Toll-free  
Line at: **1-800-321-2008**, or  
contact DOE's Hanford Home  
Page at: **www.hanford.gov**

E9705120.1

## REACTOR NEGOTIATION FUNDING PROFILE

The Tri-Parties utilized projected lower case funding profiles for purposes of their negotiation and schedule establishment, in order to avoid conflicts with other Environmental Restoration program or site cleanup projects. The reader is cautioned that budget determinations have not yet been made.



\* Note: Negotiations were based on the 10 Year Plan low budget case for the reactors.

E9705057.1

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Change Number M-93-97-01	<b>Federal Facility Agreement and Consent Order Change Control Form</b> <small>Do not use blue ink. Type or print using black ink.</small>	Date 3/28/97
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Originator Agreement Negotiation Team	Phone
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Class of Change <input checked="" type="checkbox"/> I - Signatories	<input type="checkbox"/> II - Executive Manager	<input type="checkbox"/> III - Project Manager
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Change Title Negotiation of initial commitments for the completion of Hanford surplus production reactor final facility disposition. Establishment of new Hanford Federal Facility Agreement and Consent Order (Agreement) major milestone series M-93-00.
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Description/Justification of Change See page 2 for Description/Justification of Change.
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Impact of Change Approval of this change request by the parties establishes a new major milestone, and associated interim milestones and target dates governing decommissioning/disposition of the DOE's 100 Area surplus production reactors. No other Agreement major or interim milestones are affected. This approach is consistent with the Environmental Restoration Program's existing baseline and the Environmental Restoration Long-Range Plan. On approval, Hanford Site planning and budget development documents (e.g., Sitewide Systems Engineering control documents and Multi Year Work Plans) will be modified accordingly.
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Affected Documents <u>Hanford Federal Facility Agreement and Consent Order</u> , as amended. Hanford Site planning and budget development documents (e.g., Sitewide Systems Engineering control documents and Multi Year Work Plans).
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Approvals																			
<table style="width:100%; border: none;"> <tr> <td style="border: none;">_____</td> <td style="border: none;">_____</td> <td style="border: none;">___ Approved ___ Disapproved</td> </tr> <tr> <td style="border: none;">DOE</td> <td style="border: none;">Date</td> <td></td> </tr> <tr> <td style="border: none;">_____</td> <td style="border: none;">_____</td> <td style="border: none;">___ Approved ___ Disapproved</td> </tr> <tr> <td style="border: none;">EPA</td> <td style="border: none;">Date</td> <td></td> </tr> <tr> <td style="border: none;">_____</td> <td style="border: none;">_____</td> <td style="border: none;">___ Approved ___ Disapproved</td> </tr> <tr> <td style="border: none;">Ecology</td> <td style="border: none;">Date</td> <td></td> </tr> </table>	_____	_____	___ Approved ___ Disapproved	DOE	Date		_____	_____	___ Approved ___ Disapproved	EPA	Date		_____	_____	___ Approved ___ Disapproved	Ecology	Date		
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EPA	Date																		
_____	_____	___ Approved ___ Disapproved																	
Ecology	Date																		

Description/Justification of Change (continued):

The Agreement's Fourth Amendment (January 1994), and subsequent Environmental Restoration Refocusing negotiations (See Agreement change request M-16-94-03, May 1995), documented the parties commitment to negotiate schedules for the cleanup and removal of eight of Hanford's surplus production reactors, and to complete these negotiations no later than December 31, 1996. A subsequent Agreement in Principle covering these reactor negotiations was approved by the U.S. Department of Energy (DOE), the Washington State Department of Ecology (Ecology) and U.S. Environmental Protection Agency (EPA) [the parties] on December 31, 1996 which extended this commitment date to March 31, 1997.

DOE has considered the environmental impacts, risks, benefits and costs, and institutional and programmatic needs associated with the decommissioning of eight surplus production reactors at the Hanford Site (C, F, B, D, DR, H, KE & KW). This analysis was documented in DOE's Final Environmental Impact Statement (FEIS), Decommissioning of Eight Surplus Production Reactors at the Hanford Site, Richland, Washington (DOE/EIS-0119F, December 1992). The results of this review resulted in a 1993 record of decision (ROD) which documented the selected (final disposition) alternative of interim safe storage followed by deferred one-piece removal of the eight surplus reactors (Due to interest in a B reactor engineering accomplishment museum and/or landmark, it was recognized that cleanup activities at B reactor may take a different course). With this potential exception noted, final disposition of Hanford's surplus production reactors will be conducted in a phased approach as follows:

- Disposition Phase I: Interim Safe Storage (ISS) of the Reactors - Interim Safe Storage (ISS) is the first stage of final disposition. It consists of (i) ensuring that facility hazardous substances are, and will remain, safe and secure, and (ii) reducing the footprint of the reactor building to the primary shield wall, and sealing all openings such that the facility is in an environmentally safe and secure condition prior to initiation of disposition phase II. During reactor ISS all ancillary structures surrounding the shield wall will be removed. Resulting wastes will be disposed at Hanford's Environmental Restoration Disposal Facility (ERDF), or other disposal facility as may be approved by the parties. On completion of ISS, surveillance and maintenance systems will be upgraded as appropriate to provide for remote monitoring of the remaining structure prior to disposition phase II.

- Disposition Phase II: Final Disposition of the Reactors - Final disposition of the reactors will consist of removing the reactor cores from their present location to a disposal facility in the 200 Area of the Hanford Site as specified in the FEIS-ROD. Associated structure(s) and residual wastes will be removed so as to meet established cleanup requirements pertaining to Hanford's 100 Area. Resulting wastes will be disposed at Hanford's ERDF, or other disposal facility as may be approved by the parties.

The surplus reactor FEIS ROD also documented DOE's commitment to complete surplus reactor disposition consistent with Agreement remedial action cleanup schedules, and its recognition that doing so would result in reactor safe storage period(s) of less than the potential 75-years outlined in the FEIS. The DOE committed that should the surplus

reactor FEIS ROD prove to be inconsistent with Agreement CERCLA and RCRA activities (e.g., activities under Agreement milestone M-16-00), it would re-evaluate the priority of selected alternative actions, and whether it may be more appropriate to proceed with the selected alternative on an Operable Unit-by-Operable Unit basis. In recognition: (i) of this commitment; (ii) of the conservatism associated with some reactor disposition assumptions (e.g., land use planning, environmental impact, cost, risk, public and worker health and safety, and coordination with other Agreement activities); and (iii) of the potential that more efficient and effective decommissioning may be achieved through the use of new and innovative technologies and designs, the parties have agreed to the issuance of a reactor disposition Competitive Procurement Initiative. This initiative will be designed with the objective of aiding the parties in ascertaining the most effective and efficient approach to selected alternative implementation for the final disposition of the reactors. The procurement initiative will evaluate the existing baseline assumptions and technologies, incorporate new approaches, and present recommendations for continuing with the ISS approach or proceeding directly to final removal of the reactor. The timing of this initiative (February 2002) has been designed so as to complement and coincide with knowledge gained through interim safe storage of Hanford's first two surplus reactors (C&F).

Following acquisition of this information, the parties have committed to negotiate remaining surplus reactor disposition schedules (see M-93-14 and 15).

Prior to the initiation of reactor disposition phase II the DOE will place and maintain Hanford's surplus production reactors in a condition sufficient for "interim safe storage" (see definitions and associated work schedules within this tentative agreement). The parties recognize that though Hanford's eight surplus production reactors have not undergone formal "facility transition", each has been transferred organizationally to DOE'S Environmental Restoration (ER) Program, and are under Surveillance and Maintenance (S&M). Hanford's 105/109-N reactor facilities will be placed under S&M when deactivation is complete in 1997. Final disposition of the reactors (with the potential exception of B reactor) will consist of the removal of the reactor cores from their present locations along the Columbia River to a waste disposal facility in the 200 Area of the Hanford Site, in accordance with the FEIS-ROD.

N reactor specific considerations: Because Hanford's N reactor had yet to be shut down, DOE'S FEIS ROD was restricted to the site's eight other reactor facilities. Consequently, DOE has committed to prepare, and to present for public comment, appropriate environmental documentation. N reactor is expected to follow a disposition path similar to Hanford's other surplus production reactors, and by agreement of the parties its disposition is within the scope of this M-93-00 milestone series.

In addition, and due to design considerations, the parties agree that ISS of Hanford's N reactor will include both the 105 and 109-N buildings. The 109-N building (Heat Exchanger Building) contains a portion of the N reactor primary cooling water system. Consequently, it is impracticable to consider 109-N as a facility separate from 105-N and its reactor confinement system.

B reactor specific considerations: The parties recognize that B reactor has been placed on the National Register of Historic Places, and that the reactor may be converted into a national engineering accomplishment museum and/or landmark. However, the path forward for making necessary reactor disposition cleanup decisions, and facility configuration decisions should B reactor be preserved have not been fully identified at this time. Consequently, for purposes of this Agreement, the parties' activities focus on ensuring the integration of Agreement "cleanup" decision processes and those conducted pursuant to the National Historic Preservation Act (NHPA). Prior to final decision making, B reactor will be placed and maintained in a safe and environmentally secure condition (see M-93-04, 05 and 06-T01).

C reactor specific considerations: The parties are proceeding with Interim Safe Storage (ISS) of the C Reactor (105-C) as a Large-Scale Demonstration Project supported by DOE'S Office of Science and Technology (EM-50). This project will demonstrate full scale field testing of at least twenty (20) facility decommissioning technologies. Completion of C reactor ISS will provide a far safer S&M work environment prior to reactor disposition phase II, and will greatly reduce the potential for environmental release, and intrusion. C reactor ISS (disposition phase I) activities will fully support implementation of the FEIS ROD.

The parties recognize that C Reactor ISS implementation is a demonstration and that future ISS is contingent on success in the demonstration.

This change control form establishes the following major and interim milestones and target dates for the disposition of the surplus reactors:

<u>MILESTONE</u>	<u>DESCRIPTION</u>	<u>DUE DATE</u>
M-93-00	Complete final disposition of all 100 Area surplus production reactor buildings.  100 Area surplus production reactor buildings consist of the following: 105-D, 105-DR, 105-H, and 105/109-N (Ecology lead), and 105-B, 105-C, 105-F, 105-KE, and 105-KW (EPA lead).	TBD

105-C Reactor Interim Safe Storage

M-93-01 Submit recommendation for final disposition of the 105-C Fuel Storage Basin to EPA for approval. December 1997

The decision for final disposition of 105-C Fuel Storage Basin will be made based on the results of the Data Quality Objectives process, and concrete and soil sampling analysis. The final disposition decision will be consistent with the 100-B/C Remedial Action Interim Record of Decision.

M-93-02 Submit 105-C Surveillance and Maintenance Plan for EPA approval in part. July 1998

This Milestone will be met by a S&M Plan submittal for the 105-C Reactor, or an addendum to an existing S&M Plan, covering conditions after ISS of the reactor is complete. The details of the S&M activities will be covered by project procedures.

M-93-03 Complete 105-C Reactor Interim Safe Storage Large-Scale Demonstration Project. September 1998

This milestone includes the completion of all activities necessary to place the 105-C Reactor facility in a safe storage mode in preparation for final disposition (consistent with an approved S&M Plan and Project Design Report). The ISS of C Reactor includes the demonstration of innovative D&D technologies and the dismantlement of all 105-C facility structures outside the reactor primary shield wall. These activities include hazard stabilization, asbestos abatement, facility decontamination, pipe-cutting, fuel basin clean out, and structure removal to the primary shield wall.

105-B Reactor Interim Safe Storage

105-B Reactor Agreement activities will be coordinated with, and dependent in part on National Historic Preservation Act (NHPA) decision processes.

M-93-04 Submit 105-B hazards assessment and characterization report to EPA. June 1999

- |             |  |           |
|-------------|--|-----------|
| M-93-05     | Issue B Reactor Phase II Feasibility Study Engineering Design Report for public comment. | June 2000 |
| M-93-06-T01 | Submit B Reactor Surveillance and Maintenance Plan for EPA approval in part.             | June 2001 |

This target will be modified to a specific interim milestone date on the completion of M-93-05.

105-F Reactor Interim Safe Storage

- |             |  |                |
|-------------|--|----------------|
| M-93-07     | Initiate 105-F ISS characterization and design.                          | October 1999   |
| M-93-08-T01 | Submit 105-F hazards assessment and characterization report to EPA.      | June 2000      |
| M-93-09     | Initiate 105-F ISS field activities.                                     | October 2000   |
| M-93-10     | Submit 105-F Surveillance and Maintenance Plan for EPA approval in part. | July 2003      |
| M-93-11     | Complete 105-F Interim Safe Storage.                                     | September 2003 |

The hazards assessment and characterization report will identify hazardous substances that will be addressed during ISS. The information will be used to assist the project in providing a safe work environment during ISS and for determining the disposal requirements and costs. The assessment will be submitted to the lead regulatory agency.

This milestone includes the completion of all activities necessary to place the 105-F Reactor facility in a safe storage mode in preparation for final disposition (consistent with an approved S&M Plan and Project Design Report). The ISS of F Reactor includes the dismantlement of all 105-F facility structures outside the reactor primary shield wall. These activities include hazard stabilization, asbestos abatement, facility decontamination, pipe-cutting, fuel basin clean out, and structure removal to the primary shield wall.

105-DR reactor Competitive Procurement Initiative

M-93-12 Issue 105-DR disposition competitive procurement package February 2002  
for ascertaining the most effective and efficient  
approach to FEIS ROD selected alternative  
implementation.

The 105-DR disposition competitive procurement package initiative will be designed to aid the parties in selecting the most effective and efficient approach to implement and revise\*the Final Environmental Impact Statement Record of Decision selected alternative. This initiative will request an evaluation of existing baseline assumptions and lessons learned from the 105-C and 105-F Interim Safe Storage projects. It will also request an evaluation of new and innovative approaches for final disposition and will request a recommendation whether to continue with ISS approach or proceed directly to final disposition. Initiative deliverables will include, but are not limited to: (i) a detailed review of the technical baseline for surplus reactor removal and final disposition, (ii) a detailed evaluation of present day engineering and technology capabilities, (iii) updated evaluations of other FEIS ROD assumptions, (iv) a recommended alternative for final disposition, (v) a revised conceptual design for final disposition based on the above analysis and recommended alternative, and (vi) an analysis comparing proceeding with ISS versus proceeding directly to final disposition. This initiative will include incentive clauses to ensure that the most innovative and comprehensive technical evaluations are presented.

M-93-13	Initiate Characterization and Design of ISS for the 105-DR reactor.	October 2002
M-93-14	Initiate negotiation of remaining surplus reactor disposition schedules.	June 2003
M-93-15	Complete negotiation of remaining surplus reactor disposition schedules.	December 2003
M-93-16-T01	Complete 105-DR Reactor Interim Safe Storage. Completion of this target date includes the completion of all activities necessary to place the DR Reactor facility in a safe storage mode in preparation for final disposition. See also interim milestone M-93-12.	September 2005
M-93-17-T01	Complete Interim Safe Storage for the 105-D Reactor.	September 2007

\*See information on page B3-8.

M-93-18-T01	Complete Interim Safe Storage for the 105-H Reactor.	September 2009
M-93-19-T01	Complete 105/109-N Reactor ISS design.	September 2009
M-93-20-T01	Complete 105-N Interim Safe Storage.	TBD
M-93-21-T01	Complete 105-KW Interim Safe Storage.	TBD
M-93-22-T01	Complete 105-KE Interim Safe Storage.	TBD

**\* The use of the word “and” was an inadvertent typographical error.  
The sentence should read “...implement or revise the Final...”.**

Change Number A-97-01	<b>Federal Facility Agreement and Consent Order          Change Control Form</b> <small>Do not use blue ink. Type or print using black ink.</small>	Date 3/28/97
Originator Agreement Negotiation Team		Phone
Class of Change <input checked="" type="checkbox"/> I - Signatories <input type="checkbox"/> II - Executive Manager <input type="checkbox"/> III - Project Manager		
Change Title Modifications to Hanford Federal Facility Agreement and Consent Order (Agreement) Action Plan Appendix A to Include Facility Decommissioning Process Terms (Surplus Reactor Negotiations)		
Description/Justification of Change Revise and update Appendix A of the <u>Hanford Federal Facility Agreement and Consent Order (Agreement)</u> to include additional Facility Decommissioning definitions. This change package adds the following acronyms and definitions to the Agreement Action Plan, Appendix A, Definition of Terms and Acronyms:  1) Interim Safe Storage (ISS) of the Reactors - Interim Safe Storage (ISS) is the first stage of final disposition. It consists of (i) ensuring that facility hazardous substances are, and will remain safe and secure, and (ii) reducing the footprint of the reactor building to the primary shield wall, and sealing all openings such that the facility is in an environmentally safe and secure condition prior to initiation of disposition phase II. During reactor ISS all ancillary structures surrounding the shield wall will be removed. Resulting wastes will be disposed at Hanford's Environmental Restoration Disposal Facility (ERDF), or other disposal facility as may be approved by the parties. On completion of ISS, surveillance and maintenance systems will be upgraded as appropriate to provide for remote monitoring of the remaining structure prior to disposition phase II.  2) Final Disposition of the Reactors - Final disposition of the reactors will consist of removing the reactor cores from their present location to a disposal facility in the 200 Area of the Hanford Site as specified in the FEIS-ROD. Associated structure(s) and residual wastes will be removed so as to meet established cleanup requirements pertaining to Hanford's 100 Area. Resulting wastes will be disposed at Hanford's ERDF, or other disposal facility as may be approved by the parties.		
Impact of Change This change control form does not impact any other Hanford Federal Facility and Consent Order milestones.		
Affected Documents <u>Hanford Federal Facility Agreement and Consent Order, Action Plan, Appendix A.</u>		
Approvals  _____ Date _____ Approved ___ Disapproved DOE  _____ Date _____ Approved ___ Disapproved EPA  _____ Date _____ Approved ___ Disapproved Ecology		



**Note: Proposed changes are indicated in the following redline/strikeout version of Section 8.0.**

## **- 8.0 FACILITY DECOMMISSIONING PROCESS**

### **8.1 INTRODUCTION**

The facility decommissioning process defines the approach by which DOE, with involvement of the lead regulatory agencies, will take a facility from operational status to its end state condition (final disposition) at Hanford. This is accomplished by the completion of facility transition, surveillance and maintenance (S&M), and disposition phase activities. The process is designed to integrate DOE-HQ guidance ~~as specified by the (U.S. Department of Energy, Office of Environmental Restoration, (EM 40) Decontamination and Decommissioning Guidance Document Handbook, DOE/EM-0142D, March 1994, and U. S. Department of Energy, Office of Environmental Management, Decommissioning Resource Manual, DOE/EM-0246, August, 1995, XX/XX/94~~ (hereafter referred to as the EM-40 Guidance Documents) and to ensure ~~facilitate~~ compliance with environmental regulations, including waste management RCRA closure, closure and post closure and CERCLA remedial action requirements under RCRA, and remedial and/or removal action requirements under CERCLA.

Facility decommissioning at Hanford will proceed on a priority-based path that results in an expedient and cost efficient transition of facilities to a safe and stable condition that presents no significant threat of release of hazardous substances into the environment and no significant risk to human health and the environment. The methodology allows for cases where higher priority Hanford cleanup activities warrant deferring regulated unit closure actions until prioritization decisions are made to proceed with the disposition phase.

Notwithstanding any other provision of Section 8.0, EPA and Ecology reserve the right to require closure in accordance with Federal and State hazardous waste law, and the Agreement, and to require response or corrective actions in accordance with RCRA and CERCLA and the Agreement, at any time. During the facility decommissioning process, DOE shall comply with all applicable environmental, safety and health, and security requirements.

#### **8.1.1 Background**

The DOE consolidated virtually all of its waste management, remedial action and decontamination and decommissioning (D&D) program activities in 1989 into the Office of Environmental Management (EM). Within EM, the Office of Environmental Restoration was assigned responsibility for performing remedial actions, S&M, and dispositioning activities for DOE facilities.

With the down-sizing of both nuclear weapons inventories and nuclear material production capabilities, the DOE-HQ established the Office of Facility Transition in mid-1992. This office is chartered with management of the transition from operational status to shutdown status for the numerous facilities used for nuclear material production or otherwise involved in the DOE nuclear program.

#### **8.1.2 Applicability**

This section applies to the transition, the surveillance and maintenance, and/or the disposition of key facilities located on the Hanford Site that are not fully addressed ~~under as part of~~ Section 6.0 (TSD Process) or Section 7.0 (Past-Practice Process) of this Action Plan.

Key facilities subject to this Section 8.0 process which have been identified by the parties to date include the following: PUREX, PFP, B Plant, FFTF, UO<sub>3</sub> Plant, U Plant, REDOX (202-S Building), K East Basin, K West Basin, and DOE's old reactor buildings (specifically: 105-B, 105-C, 105-F, 105-D, 105-DR, 105-H, 105-KE, 105-KW, and 105/109-N buildings). The 105 reactor buildings, UO<sub>3</sub> Plant, U Plant, and REDOX are recognized as already having been transferred to DOE's Environmental Restoration Program. On approval of each facility Surveillance and Maintenance Plan by the Lead Regulatory Agency (see section 8.6), these facilities will be recognized as having entered the surveillance and maintenance phase as described within this section.

Other key facilities that the parties agree are subject to Section 8.0 will be decommissioned in accordance with the provisions of this section and any milestones established specific to those facilities. If there is a conflict between the provisions of this section and of a specific milestone, the provisions of the milestone will prevail. This section does not apply to the following:

- Any waste disposal unit (e.g., crib, pond, ditch, landfill)
- RCRA treatment or storage units either fully closed or scheduled for closure under Section 6.0 that result in the final disposition of the facility, or result in a remaining facility that does not qualify as a "key facility" ~~per the definition below.~~
- Any facility which is fully addressed as part of a past-practice operable unit under Section 7.0 (i.e., N-area pilot project), or which is addressed under Section 7.0 to a condition which results in a remaining facility that does not qualify as a "key facility" ~~per the definition below.~~
- Facilities on the Hanford Site that have already been transferred to the ER Program and which will be decommissioned as part of operable unit remediation under Section 7.0 or under DOE authority, unless identified as key facilities by the parties. ~~from the Operations phase to the S&M phase prior to 1992 (prior to facility transition projects). These facilities are collectively defined in this document as S&M surplus facilities. Management of S&M surplus facilities during the S&M and disposition phases is discussed in Section 8.9.~~

~~Key facilities managed under Section 8.0 include facilities currently identified for transition (i.e., PUREX, UO<sub>3</sub> and FFTF), existing operating facilities, and other facilities that may be constructed in the future.~~

~~Additional key facilities will be are identified by the parties on a case by case basis, using generally based upon the following criteria:~~

- Facilities that do not fall into any of the categories summarized in the bullets above,
- Facilities that will undergo a surveillance and maintenance period greater than 180 days with hazardous substances to be left in place,
- Facilities where physical closure actions must be performed in conjunction with facility disposition, and/or

- Facilities that may be addressed in conjunction with any other facility which qualifies as a key facility.

Upon identification as a key facility, EPA and Ecology will designate a lead regulatory agency in accordance with Section 5.6.

Key facilities do not include uncontaminated structures (i.e., contains no hazardous substances), or facilities which are fully dispositioned following a decision to remove them from use.

Only with the agreement of DOE and the lead regulatory agency may key facilities (or portions thereof) be used for alternative beneficial uses, and be addressed independent of Section 8.0.

### 8.1.3 Decommissioning Relationships and Key Planning Documentation

Table 8-1 shows the relationship between phases, processes and key planning documentation that support the overall decommissioning process. A general description of key planning documents is included here. Additional information is provided in following text specific to the individual phases. Definitions specific to the facility decommissioning process are included in Appendix A of this document. The process described in Section 9.3 will be used to modify applicable documentation.

**Table 8-1 Decommissioning Process Relationships**

DECOMMISSIONING PHASES	FACILITY PROCESSES	KEY PLANNING DOCUMENTS
Transition	Stabilization Deactivation Surveillance Maintenance Decontamination	Project Management Plan (PMP)
		Facility Transition End Point Criteria Document
		Preclosure Work Plan
		Surveillance and Maintenance Plan
Surveillance and Maintenance	Surveillance Maintenance Deactivation* Decontamination*	Surveillance and Maintenance Plan
Disposition	Decontamination Dismantlement Entombment Closure Site Restoration	<del>Project Management Plan Decision Document (e.g., Action Memo, ROD, RCRA Closure Plan**)</del>
		<del>Facility Disposition End State Criteria Document Project Design Report</del>
		<del>RCRA Closure Plan**</del>

\* Completed on a case-by-case basis to further reduce facility surveillance and maintenance expenses.

\*\* RCRA Closure Plan applicable to TSD units within the facility.

Project Management Plan: An internal DOE management plan prepared to aid in governing the successful completion of a project. The ~~Project Management Plan (PMP)~~ defines DOE and DOE contractor organization, and responsibilities for executing the project. It outlines the work breakdown structure for the activities, clearly identifying the scope of work based on the technical criteria established. This document incorporates cost and schedule planning. The PMP is used to establish cost controls and milestones for tracking and reporting status on key processes and activities from start to finish of the phase. Project Management Plans are prepared during the transition ~~and disposition~~ phases.

Facility Transition End Point Criteria Document: A document developed during the transition phase that establishes the physical state of the systems and spaces within the facility to be achieved at the end of the transition phase. This document is used to satisfy programmatic requirements ~~for to~~ transition to the S&M phase. The actual condition of the facility at the end of transition will be documented as part of the S&M plan.

RCRA Closure Plan: ~~A plan developed to specifically address and ensure compliance with the requirements of Washington's Dangerous Waste Regulations, Chapter 173-303, Washington Administrative Code (WAC) for units in the facility used for treatment, storage or disposal of dangerous wastes. Closure plans consist of nine basic chapters and are consistent with the format currently used for all Hanford Site closure activities. TSD unit closure plans will be submitted to Ecology during the disposition phase planning process, and will be coordinated with approved disposition end state criteria.~~

Preclosure Work Plan: ~~A document submitted during the transition phase. Prior to closure plan submittal, a preclosure work plan will be submitted to Ecology during the transition phase. This~~ The preclosure work plan will contain, but is not limited to, elements summarized in Table 8-2. This preclosure work plan is based in part on the facility transition end point criteria document and S&M plan. The transition end point criteria document and the S&M plan are considered part of the preclosure work plan as they pertain to information related to ~~RCRA~~ TSD units.

Surveillance and Maintenance Plan: ~~A plan document~~ outlining facility specific activities taken to address essential systems monitoring, maintenance and operation requirements necessary at a ~~transitioned~~ facility to ensure efficient, cost effective maintenance of the facility in a safe condition that presents no significant threat of release of hazardous substances into the environment and no significant risk to human health and the environment until final disposition is completed.

Project Design Report: The Project Design Report (PDR) is prepared to describe activities during the disposition phase of the facility. The PDR is prepared consistent with Section 7.0 requirements for the remedial design/remedial action phase of the project. The report will contain a definition of the project scope (i.e., goals, objectives, background information, and scope statement), description of specific tasks, cost, and schedule for the completion of disposition. The intent of the report is to identify the basis and provide direction for preparation of detailed work packages or procedures utilized for conducting the project tasks. The contents of the PDR may be submitted as a separate document (i.e., Remedial Design Report) or as part of an overall design document. The lead regulatory agency will be involved in the development of the PDR and have approval in part as appropriate for the final document.

**Decision Document:** Documentation required to authorize implementation of the disposition phase activities: a) will be prepared in accordance with the provisions of Section 7.0 and the joint policy on Decommissioning of DOE Facilities under CERCLA, and b) will be prepared in accordance with Section 8.8 for any necessary RCRA TSD closure plans. The decision document (e.g., Action Memorandum, Record of Decision, Closure Plan) issued by the lead agency in accordance with Section 7.0 or Section 8.8 of the Action Plan will be the decision document for key facilities and will define the final end states as developed under Section 8.7.1, as well as preliminary cost and schedules.

## 8.2 FACILITY OPERATIONS

Facility operations precede the decommissioning process and consequently are only briefly addressed in this section. Prior to receiving a formal shutdown notice from DOE-HQ, facilities that do not have a future mission may begin preparing for the transition phase of the decommissioning process. Preparation may include conducting final process vessel clean out runs in order to expedite transition phase activities and to avoid the necessity for operational permitting of at-process vessels containing hazardous materials for storage and/or treatment following a determination that their contents are dangerous wastes. Facility personnel may also initiate preliminary development of transition end point criteria to describe the physical state of the systems and spaces within the facility at the end of the transition phase. The process of developing transition end point criteria will be structured to specifically incorporate regulatory, tribal and stakeholder input and involvement. Once a shutdown order has been received or a separate agreement is made by the ~~three~~ parties, the facility will enter the transition phase as described in Section 8.5.

### 8.3 DECOMMISSIONING PROCESS PLANNING

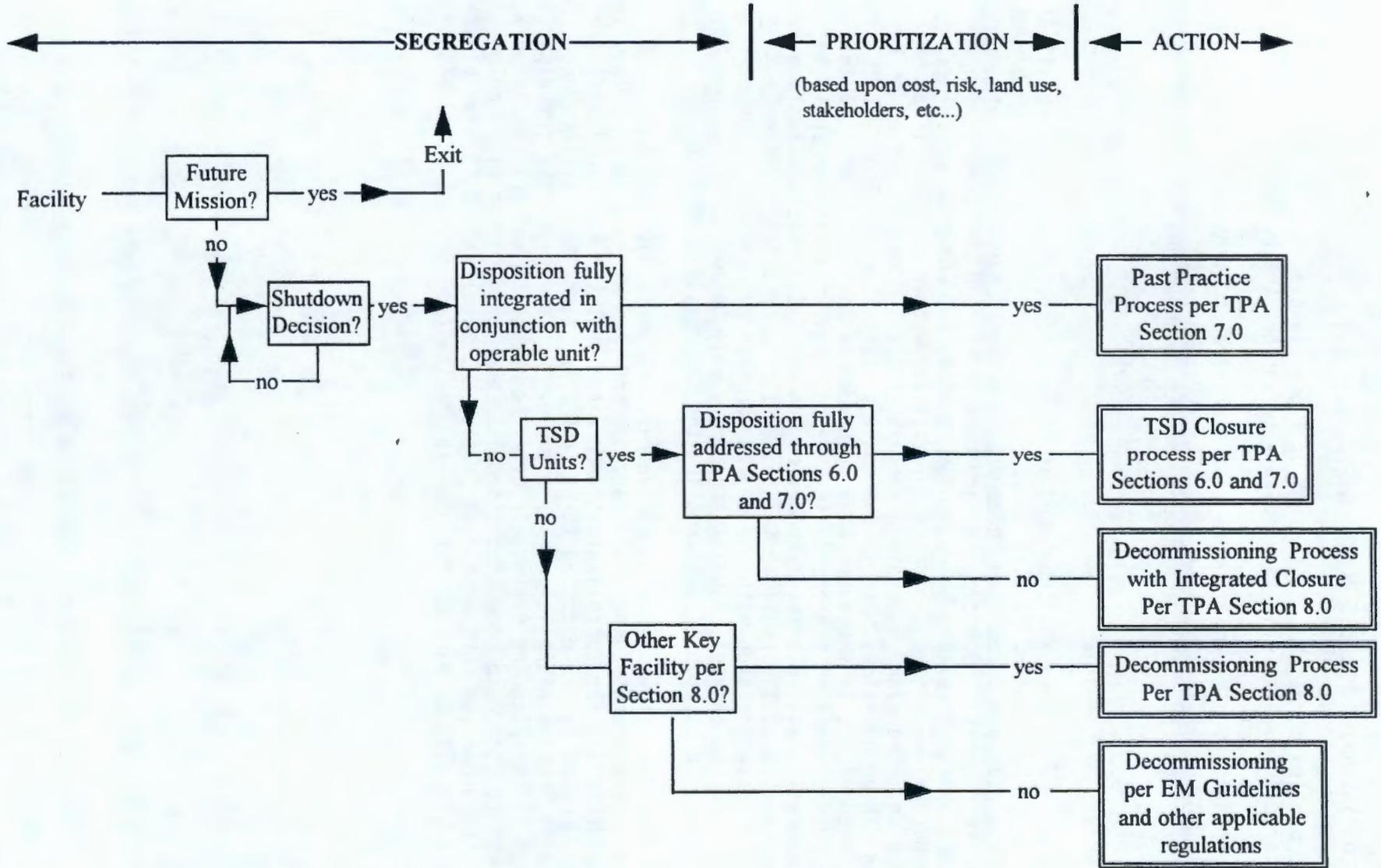
The parties agree that sufficient up front planning for facilities that will undergo decommissioning is necessary to support the budget planning process and to facilitate integration and prioritization of decommissioning with other Hanford cleanup efforts. The parties also recognize, however, that there may be unanticipated situations in which it will be necessary to take immediate actions to abate significant threats to human health or the environment.

#### 8.3.1 Long-Term Planning

DOE ~~will developed and submitted its a~~ long-term facility decommissioning plan covering key Hanford facilities to Ecology and EPA for review ~~in by~~ June, 1996. This plan and associated Agreement commitments (including those made pursuant to ~~Subsection 8.3.2-below~~) are expected to aid the parties in ~~addressing overall provide the mechanism by which the three parties will address decommissioning planning for of~~ existing and future facilities on the Hanford Site. The plan ~~will~~ categorized facilities through a series of key decision-making questions such as the logic process shown in Figure 8-1. The parties recognize that there are a large number of facilities on the Hanford Site. However, many of the facilities are administrative and/or small in nature and will fall into the category of non-key facilities. A listing of these non-key facilities will be maintained for information purposes. Many facilities are associated with and may be addressed as part of a larger facility. In these cases, facility complexes will be identified as one key facility for the purpose of implementing the decommissioning process.

For ~~key facilities identified as candidates for~~ subject to the decommissioning process under this section, the plan ~~will~~ includes a long-term road map depicting the approximate time periods that the key facilities (or facility complexes) are expected to undergo transition, surveillance and maintenance, and/or disposition. The road map is for use by the three parties to assist in the planning process in order to integrate and prioritize work, and is not considered a committed schedule. Such commitments will be established under the Agreement (see Section 8.3.2-~~below~~). This plan will be updated biennially as part of the biennial review (see Section 8.3.3-~~below~~).

**Figure 8-1 Precommissioning Planning**



### 8.3.2 Negotiations

The long-term facility decommissioning plan, as well as pertinent Agreement milestones and associated commitments, will be used by the three parties as an aids in scheduling future decommissioning related negotiations. Such negotiations will be coordinated with the facility planning phases discussed under Sections Paragraphs 8.5 and 8.7.

### 8.3.3 Biennial Review and Update

The three parties will; (1) conduct a biennial review of facility/unit status, the long-term facility decommissioning plan, and associated Agreement commitments; (2), and discuss current priorities; (3) and assess what changes are necessary. Based on this review and latest DOE guidance associated with the future use of facilities, DOE will update and submit the long-term facility decommissioning plan and any draft changes addressing proposed Agreement modifications to EPA and Ecology for review as appropriate.

## 8.4 GENERAL DECOMMISSIONING PROCESS

The typical facility decommissioning process, shown in Figure 8-2, depicts the sequential phases a facility undergoes following facility operations and includes transition, surveillance and maintenance (S&M), and disposition. This process is normally initiated following a decision from DOE-HQ to shut down a subject facility and proceed with decommissioning activities. The process time frame is established by milestones and associated target actions dates negotiated as part of the Agreement, and in most cases will be established one phase at a time.

Figure 8-2 Typical Decommissioning Process



- A = Marks the end of the operational phase. A determination has been made by DOE-HQ that the facility is a surplus facility (i.e., formal letter documentation).
- B = Marks the end of the transition phase. The preclosure work plan, surveillance & maintenance (S&M) plan and transition end point criteria document are updated as required, and approved by the DOE program responsible for S&M, and by the lead regulatory agency. The DOE review will include a check for transition end point criteria adequacy and equivalency to EM acceptance criteria objectives. Following receipt of necessary approvals, this point marks the start of the S&M phase as an interim period prior to DOE initiation of the disposition phase.
- C = Decision to proceed with disposition phase.
- D = Completion of disposition phase in compliance with applicable or relevant and appropriate requirements and in a condition protective

of human health and the environment. (Note: All associated RCRA closure actions are completed at this point.)

Figure 8-2 has been expanded in Figures 8-3 through 8-5 to include individual process steps involved with each of the subject phases. Figures 8-3 through 8-5 identify actions involving regulatory, tribal, and public involvement, and from those actions or documents requiring specific regulatory approval. Agreement negotiations are shown as part of the transition, S&M and disposition phases. More detailed descriptions of individual phases, actions and documentation are discussed in Sections 8.5 through 8.7.

## **8.5 TRANSITION PHASE**

The transition phase of a facility is initiated when a formal shutdown decision is made by DOE. Figure 8-3 shows a breakdown of the activities associated with the transition phase. The numbers shown in the boxes correspond with the section numbering from this document. Discussion specific to RCRA TSD closure plan preparation and submittal is contained in Section 8.8.

### **8.5.1 Transition Planning**

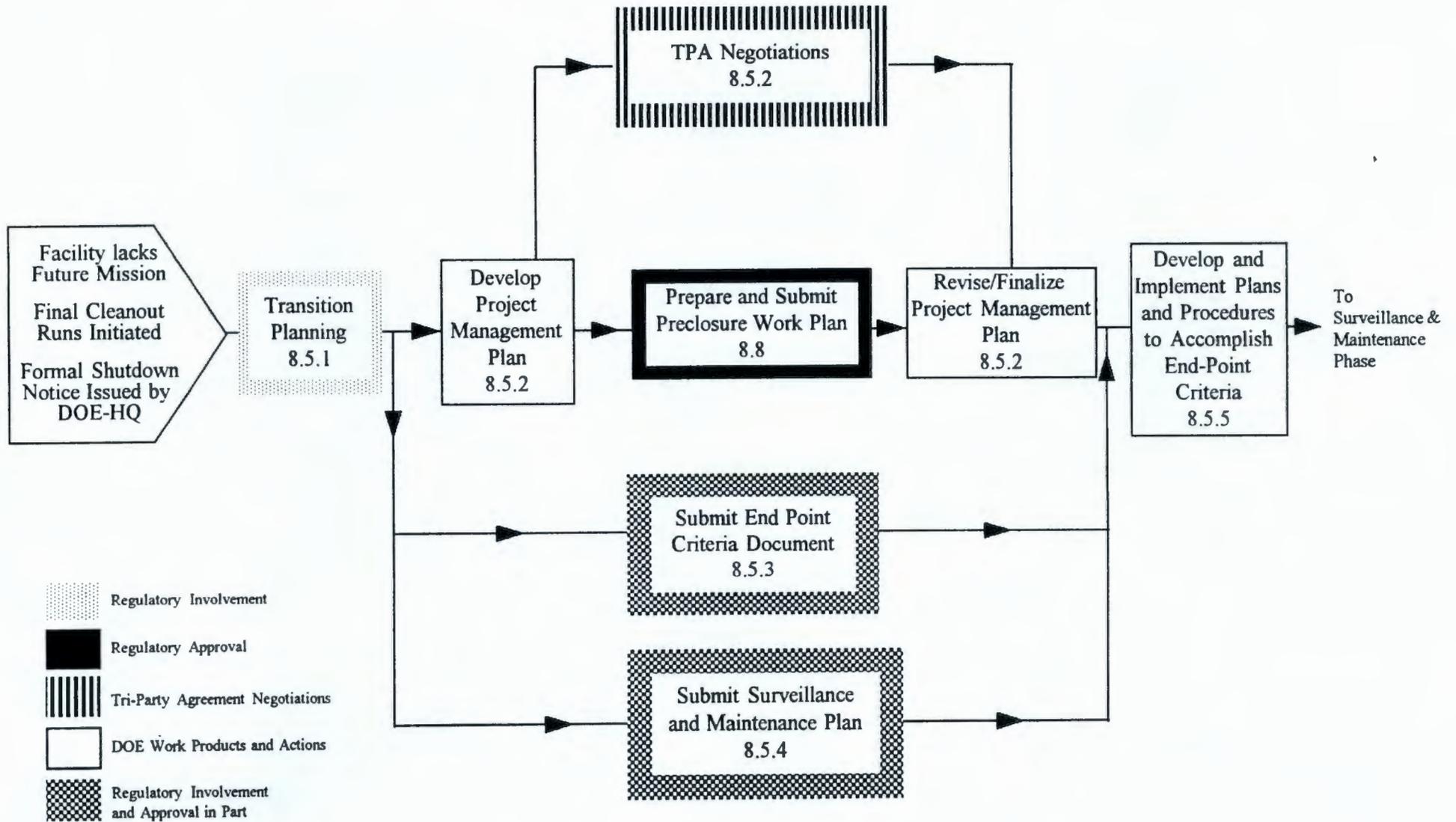
Early in the transition phase, project goals and objectives are developed in conjunction with regulatory, tribal and public input and involvement to enable a mutually agreeable and efficient transition. Vital to the success of this phase is development of transition end point criteria and S&M planning information. Transition end point criteria and S&M planning are discussed in greater detail in Sections 8.5.3 and 8.5.4, respectively. DOE will initiate discussions with the lead regulatory agency, tribes and the public to identify issues and develop proposals within three months of an official shutdown notice decision made by DOE-HQ.

During the transition planning stage, NEPA documentation supporting transition will be initiated as necessary and a preclosure work plan or closure plan will be developed for RCRA TSD units requiring RCRA closure. Where final closure of a unit does not need to be performed in conjunction with key facility disposition, a closure plan will be submitted. Documentation produced during this stage will support protection of human health and the environment and consider waste minimization and pollution prevention opportunities.

### **8.5.2 Project Management Plan**

The Project Management Plan (PMP) is prepared to describe how transition phase activities will be managed. The PMP contains work breakdown structures, cost and schedule information, and summarizes major project targets and Agreement milestones. If necessary, a revision to the PMP will be made at the conclusion of the Agreement negotiations to ensure consistency with scheduling agreements. The process of developing and revising the PMP is depicted in Figure 8-3.

**Figure 8-3 Transition Phase Breakdown**



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### 8.5.3 Transition End Point Criteria

DOE-HQ has developed a set of generic acceptance criteria for use complex wide as a target for acceptance into the S&M phase. Based on these generic acceptance criteria, facility specific transition end point criteria are developed throughout the transition phase with intent to establish acceptable final conditions of systems (i.e., tanks, piping) and spaces (i.e., rooms, areas) at the end of the transition phase. In general, the acceptance criteria require:

- documentation for the active systems and structural integrity of the facility,
- updated permitting and documented regulatory status that reflects the shutdown, stabilized condition of the facility,
- documentation of remaining hazardous and radioactive material in the facility,
- documentation of and facility history for the shutdown systems, and
- a DOE approved S&M Plan for the facility.

The transition end point criteria are ~~based on the EM acceptance criteria, regulatory, tribal and public input and are tailored specifically to the facility in question and are based on the EM acceptance criteria and regulatory, tribal and public input.~~ Transition end point criteria will be developed and documented early in the transition phase in conjunction with discussions with the regulators, tribes and stakeholders to facilitate achieving mutually accepted criteria. Aspects of the criteria may evolve during transition necessitating revisions and refinements to the criteria.

Transition end point criteria are applicable to all facilities, and their equipment and systems accepted into a surveillance and maintenance phase. All transition end point criteria will be initially developed to incorporate regulatory, tribal and stakeholder input and values. However, lead regulatory agency approval over transition end point criteria will be specific to regulated units, and/or hazardous substances proposed to remain in the facility after the transition phase is complete. Transition end point criteria will take the form of a document addressing both regulated and non-regulated equipment and systems. This document will be submitted to the lead regulatory agency in conjunction with the preclosure work plan and S&M plan. Transition end point criteria will not be inconsistent with, and will not ~~or~~ prejudice the development of acceptable end state criteria. Changes to approved transition end point criteria will be coordinated with the lead regulatory agency, and approved for changes affecting regulated units and hazardous substances that will remain in the facility.

### 8.5.4 Surveillance and Maintenance Plan

A surveillance and maintenance (S&M) plan is developed along with transition end point criteria since the selected transition end point criteria directly dictate actions that will be performed during the S&M phase. The S&M plan describes ~~the~~ facility-specific activities to be taken in order to adequately address monitoring, maintenance and operational requirements for the essential systems at a facility. It will ensure that the facility is maintained cost effectively and in a safe, stable condition that presents no

significant threat of release of hazardous substances into the environment and no significant risk to human health and the environment until final disposition is completed. Although the S&M plan evolves throughout the transition phase, focused efforts and coordination with the lead regulatory agency, tribes and stakeholders are emphasized early in the transition phase to facilitate a mutually agreeable approach to S&M.

The S&M plan will cover hazardous substances and ~~apply to both regulated and non-regulated equipment and systems.~~ Although the S&M plan will be developed to incorporate regulatory, tribal and stakeholder input and values, lead regulatory agency approval of the S&M plan will be specific to regulated units and hazardous substances in the facility. Post closure care activities will be negotiated with the lead regulatory agency on a case by case basis and incorporated into the S&M plan.

For facilities that contain RCRA TSD units, the S&M plan developed during the transition phase will be submitted to Ecology in conjunction with the preclosure work plan and the latest transition end point criteria document.

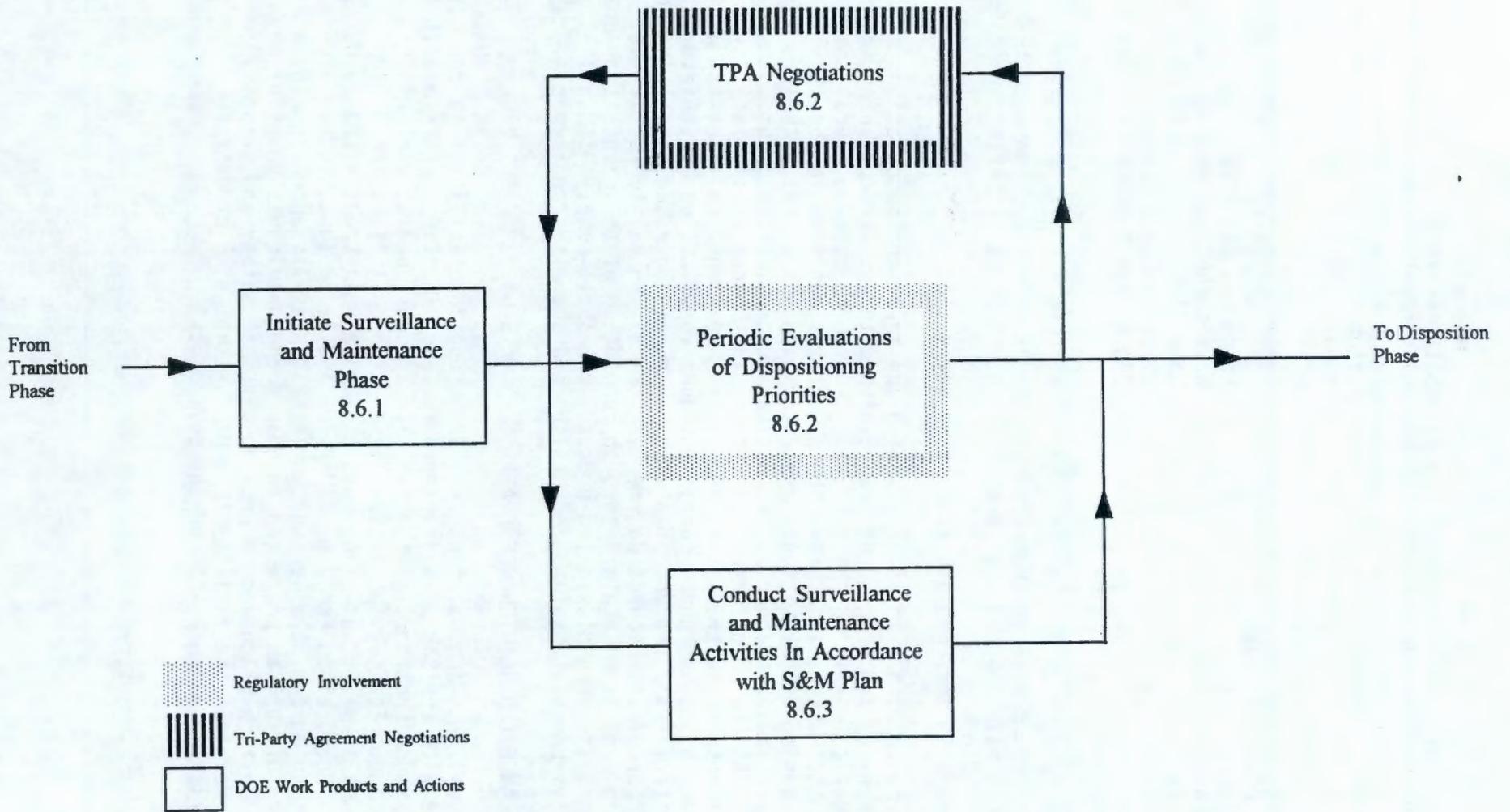
#### **8.5.5 Proceed with and Complete Transition Activities**

In accordance with transition planning and Agreement negotiations, internal work plans and procedures are developed to aid accomplishing the facility specific transition phase tasks. Procedures provide operational guidance for the workers to achieve the objectives outlined in the facility transition planning documentation. As systems and spaces reach their identified transition end points, S&M activities are initiated consistent with the S&M plan. At the point where all systems and spaces at the facility achieve their respective transition end point conditions, the facility will await transfer to the S&M phase contingent upon verification of achievement of end point criteria (and the acceptance criteria not addressed by the end point criteria). Appropriate records documenting transition related activities will, at a minimum, be maintained through completion of the disposition phase. During the facility decommissioning process, DOE shall comply with all applicable environmental, safety and health, and security requirements.

#### **8.6 SURVEILLANCE AND MAINTENANCE PHASE**

The surveillance and maintenance (S&M) phase for facilities is conducted in accordance with the S&M plan developed for each facility. For facilities transitioned under Section 8.5, the S&M Plan is developed as part of the transition phase. For key facilities (See Section 8.1.2), which did not proceed through formal transition, but which have been transferred to DOE's Environmental Restoration Program, S&M Plan(s) will be submitted in accordance with established Agreement milestones. The S&M phase is shown in Figure 8-4. The objectives of the S&M phase are to ensure adequate containment of any contaminants left in place and to provide physical safety and security controls and maintain the facility in a manner that will present no significant risk to human health or the environment.

Figure 8-4 Surveillance and Maintenance Phase Breakdown



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S&M plans will be prepared by DOE and will detail facility aspects and associated requirements including the following: ~~the facility during the transition phase and will address~~ (1) facility surveillance, (2) facility maintenance, (3) quality assurance, (4) radiological controls, (5) hazardous substance inventory, management and ~~material~~ protection, (6) health and safety/emergency preparedness, (7) safeguards and security, and (8) cost and schedule. ~~The S&M plan for S&M surplus facilities will be prepared as specified in EM 40 Guidance Documents. During the facility decommissioning process, DOE shall comply with all applicable environmental, safety and health, and security requirements throughout the S&M phase.~~

#### 8.6.1 Initiation of S&M Phase

The S&M Phase will start after plant operators have verified the transition end points, the lead regulatory agency and DOE-HQ have received the verification, and all appropriate approvals have been ~~made and~~ received. Initiation of the S&M phase is shown as the first box in Figure 8-4.

#### 8.6.2 Biennial Evaluations of Disposition Priorities

~~Throughout~~ ~~During~~ the S&M phase, biennial evaluations of long term S&M and disposition plans and schedules will be performed. These evaluations will be performed in conjunction with the biennial reviews discussed in Section 8.3.3 and Agreement negotiations to identify, evaluate and assess the status of Hanford Site priorities as well as tribal and stakeholder values. S&M surplus facilities will be included in the evaluation of disposition priorities.

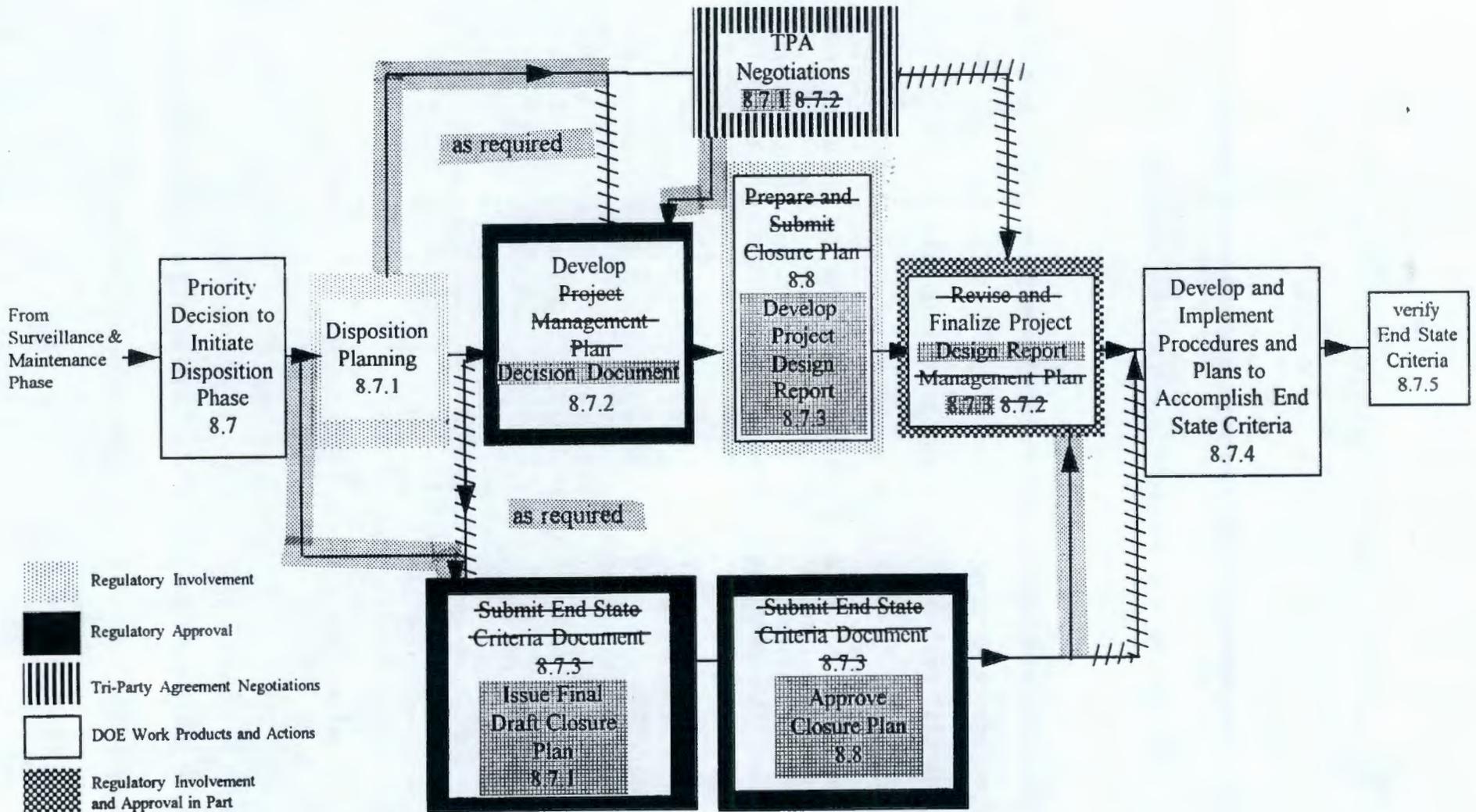
#### 8.6.3 Ongoing S&M Activities

Ongoing S&M activities will be conducted in accordance with the approved S&M plan and associated Agreement commitments until a decision is made by DOE-HQ to initiate the disposition phase, or ~~actions are~~ required by the lead regulatory agency pursuant to the terms of Sections 8.3.3 or 8.1.

### 8.7 DISPOSITION PHASE

The disposition phase is ~~envisioned to be analogous to the transition phase,~~ initiated following a decision by DOE-HQ, or may result from a decision by the lead regulatory agency pursuant to the terms of Section 8.1. Figure 8-5 shows a breakdown of the activities associated with the disposition phase. The numbers identified in the boxes correspond with applicable discussion below. Discussion specific to the closure plan revision is deferred to Section 8.8.

**Figure 8-5 Disposition Phase Breakdown**



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### 8.7.1 Disposition Phase Planning

Early in the disposition phase, project goals and objectives are developed in conjunction with lead regulatory agency, tribal and public input and involvement to enable a mutually agreeable and efficient disposition of the facility. ~~Development of any required NEPA documentation and land usage agreements initiate the disposition phase and will be used as an aid in identifying or developing necessary disposition phase activities.~~ A cooperative effort among all parties will be required in order to establish and revise the disposition end state criteria to establish the conditions of facilities or facility areas at the end of the disposition phase consistent with applicable requirements and established NEPA and land use determinations. ~~Disposition end state criteria are discussed in greater detail in Section 8.7.3.~~ DOE will initiate discussions with the lead regulatory agency, tribes and public to identify issues, evaluate alternatives, and develop a proposed disposition alternative to meet defined end states ~~als within three months of the DOE HQ decision to initiate the disposition phase.~~

The facility specific disposition end states are developed during the disposition planning phase with the intent to establish the ultimate acceptable condition of systems and spaces at the end of the disposition phase. Disposition end states will be developed and documented early in the disposition phase in conjunction with the lead regulatory agency, tribes and stakeholders to facilitate mutually acceptable criteria. Aspects of the end states that pertain to RCRA TSD units and/or hazardous substances shall be developed, revised or refined only with the approval of the lead regulatory agency.

Disposition end states will be initially developed to incorporate lead regulatory agency and stakeholder input and values. The disposition end states will be contained in a document covering hazardous substances and both regulated and non-regulated equipment and systems. The lead regulatory agency will have approval authority over disposition end states for regulated RCRA TSD units and hazardous substances. This document (e.g., EE/CA, Proposed Plan) will be prepared in accordance with Section 7.0 and will be submitted to the lead regulatory agency in conjunction with any necessary closure plan. The final draft Closure Plan for RCRA TSD units will be submitted for public review and comment at the same time as the disposition planning document. DOE and the lead regulatory agency may establish Agreement commitments during the planning phase to be incorporated into the decision documentation in Section 8.7.2.

### 8.7.2 Decision Documents

Documentation required to authorize implementation of the disposition phase activities: a) will be prepared in accordance with the provisions of Section 7.0 and the joint policy on Decommissioning of DOE Facilities under CERCLA, and b) any necessary closure plans for RCRA TSD units will be prepared in accordance with Section 8.8. The decision document (e.g., Action Memorandum, Record of Decision, Closure Plan) issued in accordance with Section 7.0 or Section 8.8 of the Action Plan will define the final end states as developed under Section 8.7.1, as well as preliminary cost and schedules.

### 8.7.2 Project Management Plan

The Project Management Plan (PMP) is prepared to describe how the disposition phase activities will be managed. The PMP contains work breakdown structures, cost and schedule information, and summarizes major project targets and Agreement milestones. If necessary, a revision to the PMP will be made at the conclusion of the Agreement negotiations to ensure consistency with scheduling agreements. The process of developing and revising the PMP is depicted in Figure 8-5.

### 8.7.3 Disposition End State Criteria

Facility specific disposition end state criteria are developed during the disposition phase with the intent to establish the ultimate acceptable condition of systems and spaces at the end of the disposition phase. Disposition end state criteria will be developed and documented early in the disposition phase in conjunction with the lead regulatory agency, tribes and stakeholders to facilitate mutually acceptable criteria. However, certain aspects of the criteria will evolve during the disposition phase necessitating revision and refinement of the criteria. Aspects of the criteria that are applicable to RCRA TSD units and/or CERCLA hazardous substances shall be developed, revised or refined only with the approval of the lead regulatory agency.

All disposition end state criteria will be initially developed to incorporate lead regulatory agency and stakeholder input and values. The disposition end state criteria will be contained in a document for both regulated and non regulated equipment and systems. The lead regulatory agency will have approval over disposition end state criteria for regulated RCRA units and hazardous substances proposed to remain in the facility. This document will be submitted to the lead regulatory agency in conjunction with any necessary closure plan.

### 8.7.3 Project Design Report

The Project Design Report (PDR) is prepared to describe activities during the disposition phase of the facility. The PDR is prepared consistent with Section 7.0 requirements for the remedial design/remedial action phase of the project. The report will contain a definition of the project scope (i.e., goals, objectives, background information, and scope statement), description of specific tasks, cost, and schedule for the completion of disposition. The intent of the report is to identify the basis and provide direction for preparation of detailed work packages or procedures utilized for conducting the project tasks. The contents of the PDR may be submitted as a separate document (i.e., Remedial Design Report) or as part of an overall design document. The lead regulatory agency will be involved in the development of the PDR and have approval in part to ensure consistency with the final decision document.

#### 8.7.4 Proceed with and Complete Disposition Phase Activities

In accordance with disposition planning and associated Agreement commitments, implementing documentation will be developed to accomplish facility-specific disposition phase tasks. ~~internal procedures will be developed to accomplish facility specific disposition phase tasks. Identified necessary~~ Detailed work packages and procedures provide operational guidance for the workers to satisfy the objectives outlined in the disposition planning documentation. At the point where all systems and spaces at the facility achieve their respective disposition end state conditions, final disposition is achieved and the end states ~~criteria~~ will be verified. Appropriate records documenting transition and closure related activities will be maintained on file. During the disposition phase, DOE shall comply with applicable environmental law, safety and health, and security requirements.

#### 8.7.5 Verification of Disposition End State

During the closeout and verification of the disposition phase, achievement of the disposition end state criteria will be verified. DOE will perform verification surveys and samplings. ~~Independent verification will be performed by a sub contractor to DOE specifically retained to verify if disposition end states have been achieved.~~ Verification will specifically tie to closure planning requirements for applicable regulated units. All verification results, regardless of the methods used, will be available to the public.

#### 8.7.6 Integration of Disposition Phase with Operable Units

As shown on Figure 8-1, some facilities will be addressed fully in conjunction with operable unit activities under Agreement Section 7.0 or under DOE authority. These facilities are not covered by ~~addressed in this Section 8.0.~~ For key ~~those~~ facilities that are only partially addressed as part of an ~~the~~ operable unit activity, the remaining disposition phase activities will be planned and conducted under this section. This may include the management of soil contamination not accessible during the operable unit activity.

In the event ~~facility~~ disposition of a key facility proceeds prior to ~~the~~ operable unit activity, the disposition of any contaminated soils and site restoration activities may be deferred to follow-on operable unit activities conducted under Section 7.0, ~~and not addressed in this section.~~ Any such agreement will be documented in writing and approved by the DOE and Lead Regulatory Agency executive managers.

#### 8.8 Preclosure Work Plan and RCRA Closure Plan

Washington's HWMA and associated regulations contained in Chapter 173-303 WAC require owners or operators of dangerous waste treatment, storage or disposal facilities to have a written and approved closure plan. DOE, Ecology and EPA have established a mutually acceptable closure plan format that is being used currently for Hanford Site closure plans. The basic closure plan format contains the following nine chapters: 1) Introduction, 2) Facility Description, 3) Process Information, 4) Waste Characteristics, 5) Groundwater Monitoring, 6) Closure Strategy and Performance Standards, 7) Closure Activities, 8) Postclosure Plan, and 9) References.

The nature of the decommissioning process has led DOE, Ecology and EPA to evaluate the timing of RCRA closure at key facilities. The phased

decommissioning process combined with the requirements of NEPA and future land use determinations will often make completion of RCRA closure activities during the transition or S&M phases impracticable. In cases where timely completion of RCRA TSD unit closure is practicable, DOE will prepare, and submit to Ecology for review and approval, a complete closure plan for implementation during the transition phase. In cases where physical conditions and/or unknowns prevent timely completion of closure, DOE will prepare, and submit to Ecology for review and approval, a preclosure work plan for implementation during the transition phase. The preclosure work plan will detail actions to be completed during the transition phase in order to facilitate full RCRA closure in the future. These efforts may include removal of dangerous wastes and hazardous substances and/or removal or decontamination of equipment or structures contaminated with dangerous wastes or hazardous substances. The content of the preclosure work plan and its relationship to the RCRA closure plan are summarized in Table 8-2. The transition phase will not be considered complete until DOE has either completed RCRA closure and/or implemented a lead regulatory agency approved preclosure work plan. In cases where closure is not completed during the transition phase, the S&M plan for the key facility will address RCRA compliance. It is anticipated that, for such units, RCRA closure will be conducted during the disposition phase, however, Ecology may, at any time, choose to accelerate closure timing and/or initiate final closure in order to assure timely protection of human health and the environment. Agreement negotiations during the transition and disposition phases will establish Agreement milestones and target dates applicable to preclosure and closure activities.

In addition to its review and approval of RCRA closure plans and preclosure work plans, the lead regulatory agency will have approval authority ~~regulatory involvement~~ in establishing acceptable transition end point criteria and disposition end states for hazardous substances and associated facility systems and spaces. ~~criteria for the facility systems and spaces.~~ The transition end point criteria document and/or disposition end states ~~criteria documents~~ will be submitted to the lead regulatory agency with closure plans and/or preclosure work plans during the transition and/or disposition phases as appropriate (e.g., if closure will occur during the transition phase, the transition end point criteria document will be submitted with the RCRA closure plan). The lead regulatory agency will also have involvement in and receive an S&M plan for each key facility. The S&M plan will be developed by DOE and submitted to the lead regulatory agency during the transition phase in conjunction with the transition end point criteria document and closure plan or preclosure work plan. When approved, the S&M Plan will document any hazardous substances to be left at the facility during the S&M phase.

#### ~~8.9 SURVEILLANCE AND MAINTENANCE SURPLUS FACILITIES MANAGEMENT~~

~~Facilities on the Hanford Site transferred from the Operations phase to the S&M phase prior to 1992 (prior to facility transition projects) are collectively defined in this document as S&M surplus facilities.~~

### ~~8.9.1 Surveillance and Maintenance Phase~~

~~S&M surplus facilities are currently in the S&M phase, and will continue to be managed in accordance with the EM 40 Guidance Document and other applicable regulations. This entails using the existing S&M procedures to control day to day activities and the preparation of an S&M plan (per Paragraph 8.6) to describe the overall management of the facilities until disposition phase activities commence. The ongoing S&M activities are designed to maintain the facilities in a safe and stable condition, assuring there are no significant threats of release of hazardous substances into the environment and no significant risks to human health and the environment.~~

### ~~8.9.2 Disposition Phase~~

~~Disposition phase schedules for S&M surplus facilities will be consistent with the approach discussed in Section 8.3. This approach will integrate S&M surplus facility disposition phase actions with Section 7.0 operable unit remedial actions, as appropriate.~~

~~All disposition phase actions will be performed in accordance with federal and state hazardous waste law, and the EM 40 Guidance Document. Disposition end state criteria will require lead regulatory agency approval if DOE proposes to leave hazardous substances in place at the facility.~~

Table 8-2 Preclosure Work Plan and Closure Plan Elements \*

Cpt	Description	Preclosure Work Plan Submitted During Transition Phase	Closure Plan on Submitted e.g. During Disposition Phase
1	Introduction	ALL	ALL
2	Facility Description	ALL	ALL
3	Process Information	ALL	ALL
4	Waste Characteristics	ALL	ALL
5	Groundwater Monitoring	Documents the nature and extent of groundwater contamination that has occurred and describes actions necessary during the S&M phase	Documents details of groundwater investigation, necessary remediation and monitoring (may be conducted in conjunction with applicable CERCLA operable unit and RI/FS process)
6	Closure Strategy and Performance Standards	Documents the preclosure strategy, end point criteria performance standards and necessary transition phase preclosure activities. This chapter will contain a qualitative assessment of anticipated closure and postclosure outcomes, if known (i.e., clean closure or otherwise)	Remaining details including closure of secondary containment, end state of systems and material left in place, final disposition of vessels, end state of canyon structures and integration with CERCLA remedial activities. Includes cross references to surveillance and maintenance plan
7	Closure Activities	Detailed description of any closure activities and schedule(s)	Describes the remaining closure information/activities related to disposition phase
8	Postclosure Plan	Postclosure activities will be addressed to the extent known	Detailed Postclosure plan if decision is made to leave waste in place
9	References	Includes references used in transition phase of the preclosure work plan	Includes all remaining references

\* Requirements of a RCRA closure plan are specified in 40 CFR 264 and Chapter 173-303 WAC, and are only briefly summarized here

B3-32

# Reactor Pre-Negotiations Information Packet

Hanford Advisory's Board  
Environmental Restoration Committee

January 22, 1997

## *Pre-Negotiation Presentation*

*Prior to formal negotiations for the Hanford 100 Area surplus production reactors, a series of meetings were held to present pertinent information to be utilized as a basis for the negotiations. The presentation material was obtained from reviews of the Final Environmental Impact Statement, Decommissioning of Eight Surplus Reactors at the Hanford Site, Richland Washington (DOE/EIS-0119F, December 1992) and of a draft conceptual design report for one-piece removal (1994). The technical assumptions and cost information from the two reports were compared and the differences noted in the presentations. A review was conducted of the baseline assumptions in the EIS to evaluate any significant changes since the draft was issued in 1989. It is DOE's conclusion that the assumptions from the EIS are still valid and the only difference is a half-life of radiological decay of Cobalt-60, a major contaminant of concern for the reactors. The following information package was provided to the Hanford Advisory Board's Environmental Restoration Committee meeting during an update on the reactor negotiations.*

## EIS General Assumptions

- The 8 reactors are surplus and are not scheduled for any future use
- Purpose of Action: Isolate radiological and hazardous waste to minimize environmental impacts, especially the H&S of the public
- B Reactor is eligible for designation as a historic place (Currently on Register of Historic Places)
- DOE has no intention of relinquishing institutional controls of the Site for the foreseeable future

## EIS General Assumptions

- Actions provide no cumulative impacts in conjunction with the foreseeable clean-ups at the Hanford Site (ie no additional burden)
- Contaminants are low-level waste that can be disposed of at Hanford
- All alternatives consider site restoration at the completion of the action
- All reactors are similar in design, construction, and condition (KE and KW are larger)

## EIS General Assumptions

- Disposal Site will have barrier, gw monitoring, and a marker system, and may have a liner leachate in the 200 Area)
- All fuel basins are considered empty and dry
- Haul road will follow existing roadways
- 100 years institutional control based on low-level burial ground regulations 40 CFR 191
- Costs estimated on an overlapping schedule and consider benefits from prior work; Contingencies range from 12 - 30 %

## No Action

- Continue with present actions (S&M)
- Evaluated for 100 year institutional control period for comparison purpose
- Dose: 24 person-rem
- Total cost \$ 43.5M
  - Cost basis (per reactor):
    - initial repairs \$904k
    - Major repairs \$229k every 20 years
    - Minor repairs \$ 70k every 5 years
    - S&M annual \$ 23k

## Immediate One-Piece Removal

- Transport reactor intact on transporter to 200 Area for disposal
- Haul road utilize existing roadway
- Estimated 2.5 years per reactor to complete
- Closure includes backfill, grading, revegetation for other DOE use
- Costs include transporter, haul road, and disposal facility
- Dose: 159 person-rem (Occupational)

## Immediate One-Piece Removal Cost

- Total Cost: \$228 M
- No escalation
  - 25% service charge on labor
  - 20% Contingency on dismantle/construction
  - 30% on building removal
  - 25% on road construction
  - 12% on burial ground costs
- Higher costs for Basin work not included (B/C)
- Reduced planning costs after first reactor

## Safe Storage followed by Deferred One-Piece Removal

- Safe Storage period is up to 75 years, for decay of Cobalt-60
- S&M same as No Action alternative
- One-piece removal same as immediate alternative
- Cost: \$234.9 M
- Dose rates corrected for decay (Cs-137)
- Total dose: 51 person-rem (23 for S&M; 28 for removal)

## Safe Storage followed by Deferred Dismantlement

- Safe Storage period up to 75 years
- Reactor would be disassembled piece-by-piece and disposed of in the 200 Area
- 6.5 years to complete a reactor
- Largest Impact from accident scenario for this alternative
- Dose: 532 person-rem (509 for dismantle)
- Cost: \$ 311 M

## In Situ Decommissioning

- Demolish surrounding structures
- Apply fixative to contaminated surfaces
- Fill voids and pipes with grout (98k m3 grout, 1.6M m3 fill)
- Cover with 5 m of soil and gravel, rip-rap sides of the mound
- 2 years to complete a reactor
- Dose: 33 person-rem
- Cost: \$193 M( 20% contingency, 12% for fill)

## Alternatives Considered Not Analyzed

- No Action - Not reasonable; did not isolate contaminants from the environment
- Immediate Dismantlement - High cost, high occupational dose for no benefit; Reactor would be flooded with water for shielding
- No disposal sites other than Hanford - Increased public exposure for waste in transit
- Variation of Safe Storage - Steel dome, no benefit over time frame.

## Environmental Impacts

- Assumptions
  - Hanford abandoned after 100 years
  - Exposure by D&D, accidents, post-D&D release
  - Public exposure due to inhalation of airborne material from accidents
  - Occupational exposure from external gamma; 6 hr worker exposure
  - Seismic event does not exceed accident scenarios
  - 500 year flood does not reach reactor core
  - Long-term pathway is via GW; well dose is from well between reactor and the river ( max. dose in 240 years)

## Environmental Impacts

- Support personnel assumed 50% of worker exposure
- Accident scenarios selected as most serious and likely to occur during and post - alternative
- Co-60; Cs-137 impact to workers
- Cs-137; long-term public dose
- Mitigation measures include:
  - Dosimetry and protective equipment
  - Archeological surveys for fill sites
  - Barriers for water migration

## Socio-economic Impacts

- Largest Impact is to the work force
- 100 workers needed for D&D (~ 1% of Hanford Site work force)
- Alternatives provide negligible impact to the Hanford Site Work force

## EIS Environmental Impact Summary

Alternative	GW monitor period (years)	Ecological Impacts	Air Quality Impacts	Water Quality Impacts	Waste Vol. (m <sup>3</sup> )	Cost 1990 (\$M)	Resource Impacts	Accident Scenario
1. No Action (i.e., continue present action)	NA	Minimal	Very Small	No discharge to waterways	NA	43.5	Land for facilities	NA
2. Immediate one-piece removal	97.5	Minimal (Areas for fill & gravel)	Some fugative dust	No discharge to waterways	4170	228.3	Land for disposal, fill 6M liters fuel	Block falls off transporter, 1% of graphite released over 8 hours
3. Safe Storage, deferred one-piece removal	22.5	Minimal (Areas for fill & gravel)	Some fugative dust	No discharge to waterways	4170	234.9	Land for disposal, fill 6M liters fuel	Block falls off transporter, 1% of graphite released over 8 hours
4. Safe Storage, deferred dismantlement	26.5	Minimal (Areas for fill & gravel)	Some fugative dust	No discharge to waterways	4850	311.3	Land for disposal, fill 2M liters fuel	Roof containment lost; rail car accident 8 hour release
5. In Situ decommissioning	98.3	Minimal (Areas for fill & gravel)	Some fugative dust	No discharge to waterways	1400	193	Land for disposal, fill 5M liters fuel	50% dam failure
Reference	Table 3.1	Table 3.16	Table 3.16	Table 3.16	Table 3.4 - 3.6	Table K.1	Section 5	Section 5

- Notes: 1. Quantities are based on all eight reactors  
 2. Waste volume for In situ derived from one-piece removal vol. minus reactor vol.  
 3. Short-term consequences (Table 3.16)

## EIS Risk Summary

Alternative	Occupational Radiation Dose (person-rem)	10,000 year population Dose (person-rem)	Public Radiation Dose	Accident Radiation (person-rem) [max indiv]	Accident Radiation (person-rem) [Public]	Columbia River Dose to indiv. (rem) Years to max exposure	Drinking Water dose from Well water (rem/yr)
No Action (i.e., continue present action)	24	50,000 (5-50 health effects)	Very Small	NA	NA	$2.4 \times 10^{-4}$ 2590	1.2 140 yrs after disposal
Immediate one-piece removal	159	1900 (0.2-2 health effects)	Very Small	0.08	300	$1.1 \times 10^{-5}$ 8190	0.04 6160 yrs after disposal
Safe Storage, deferred one-piece removal	51	1900 (0.2-2 health effects)	Very Small	0.08	300	$1.1 \times 10^{-5}$ 8190	0.04 6160 yrs after disposal
Safe Storage, deferred dismantlement	532	1900 (0.2-2 health effects)	Very Small	0.2	800	$1.1 \times 10^{-5}$ 8190	0.04 6160 yrs after disposal
In Situ decommissioning	33	4700 (0.5-5 health effects)	Very Small	NA	NA	$2.2 \times 10^{-5}$ 3430	0.03 1120 yrs after disposal
REFERENCE	Table 3.15	Table 3.15	Table 3.16	Table 3.16	Table 3.16	Table 3.17	Table 3.17

- Notes:
1. Quantities are based on all eight reactors
  2. Same population (410M) receives 9 billion person-rem from natural radiation (900k to 9M health effects)
  3. Short-term Consequences (Table 3.1.6)
  4. Long-term Consequences (Table 3.1.7)
  5. Well dose is from leachate from in situ wastes (all alternatives less than 5 health effects)

## Estimated Radionuclide Inventory in C Reactor in 2025 and 2035

Estimated Radionuclide Inventory in C Reactor in 2025 and in 2035 (Calculation Base March 1985)									
Radionuclide	Type Energy Radiated	Half-Life (years)	1985 Inventory (Curries)	2025 (40yrs) Inventory (Curries)	Curie Change	Percent Inventory Change	2035 (50yrs) Inventory (Curries)	Curie Change	Percent Inventory Change
H <sub>3</sub>	B	12.3	8900	932.44	7967.6	-89.52	530.49	8369.5	-94.04
C <sub>14</sub>	B	5730	4500	4482.04	17.96	-0.4	4447.56	52.4	-1.17
Co <sub>60</sub>	B and γ	5.3	10426	55.7	10370.3	-99.47	15.06	10410.9	-99.86
Ni <sub>63</sub>	B	100	894	678.38	215.62	-24.12	633.15	260.85	-29.18
Cs <sub>137</sub>	γ	30.2	36	14.35	21.65	-60.14	11.4	24.6	-68.33
U <sub>238</sub>	α	4.5x10 <sup>4</sup>	0.004	0.004	0	0	0.004	0	0
Pu <sub>239</sub>	α	2.4x10 <sup>4</sup>	2.5	2.497	0.003	-0.12	2.496	0.004	-0.16
Total Inventory Change			24758.5	6165.41	18593.13	-75.1	5640.16	19118.25	-77.2

## Estimated Radionuclide Inventory in All Reactors in 2025 and 2035

<b>Estimated Radionuclide Inventory in All Reactor in 2025 and in 2035 (Calculation Base March 1985)</b>									
Radionuclide	Type Energy Radiated	Half-Life (years)	1985 Inventory (Curries)	2025 (40yrs) Inventory (Curries)	Curie Change	Percent Inventory Change	2035(50yrs) Inventory (Curries)	Curie Change	Percent Inventory Change
H <sub>3</sub>	β	12.3	98100	10278	87822	-89.5	5847	92253	-94.04
C <sub>14</sub>	β	5730	37400	37251	149	-0.4	37213	187	-0.5
Co <sub>60</sub>	β and γ	5.3	74358.2	397.3	73961	-99.5	107.4	74250.8	-99.86
Ni <sub>63</sub>	β	100	10961.52	8318	2643.5	-24.12	7763	3198.52	-29.18
Cs <sub>137</sub>	γ	30.2	266.17	106.1	160.07	-60.14	84.3	181.87	-68.33
U <sub>238</sub>	α	4.5×10 <sup>4</sup>	0.013	0.013	0	0	0.013	0	0
Pu <sub>239</sub>	α	2.4×10 <sup>4</sup>	11.244	11.231	0.013	-0.12	11.228	0.016	-0.14
<b>Total Inventory Change</b>			221097.15	56361.64	164735.58	-74.51	51025.94	170071.21	-76.92

## Reactor Cost Comparison

- Sources
  - Surplus Reactor EIS - 1989/1992
  - Conceptual Design Report (CDR) -1994
  - ER Project Baseline Books
  - C Reactor Interim Safe Storage Cost Estimate (1996)

# Reactor Disposition Cost Comparison

- Infrastructure
  - Transporter
  - Haul Road
  - Disposal Facility
- Waste Disposal
  - Ancillary Structures
- Reactor removal
- Miscellaneous
- (Engineering, Contingency, Project Management, etc.)

## Infrastructure - Transporter

- **EIS**
  - Two Transporter system based on Niel F Lampson estimate (KEH-1986)
  - Exact design uncertain; Need consideration of weight per area for haul road
  - Design Based on KE and KW Reactors - 11,000 tonnes

## Infrastructure - Transporter

- **Conceptual Design Report**

- Four unit system, based on bearing load to haul road and poor lateral stability of two unit system
- Cost based on vendor input - Marion Division, INDRESCO
- Costs include 6 FTE for maintenance per year and 7% adder for procurement

## Infrastructure - Haul Road

- **EIS**

- Located near existing roadways to minimize impacts
- Requires special road for transporters
- Cost included 25 % Contingency (\$21.8M)
- Cost was for initial road to F Reactor with additional costs for side roads to each of the remaining reactors

## Infrastructure - Haul Road

- **CDR**
  - Phased road construction, begin with C Reactor
  - Recompact top 2 feet of soil, add crushed Rock and Road mix (WDOT specs)
  - Road is bermed, 120-150 ft wide, grade below 5%, designed for 39 metric tons/m<sup>2</sup>
  - Cost includes road maintenance (\$1.1M) and final restoration (\$2M)

## Infrastructure - Disposal Facility

- **EIS**
  - Cost includes protective barrier and marker system
  - Cost includes liner and leachate collection system
  - Cost in EIS included 12 % Contingency (\$46.6M)

## Infrastructure - Disposal Facility

- **CDR**

- Unlined trench similar to low level burial grounds ( no liner/leachate collection system)
- ERDF eliminated from consideration due to interference by 200 Area Utilities and additional haul distance
- Excavated Volume is 1.9M cubic yards ( Two ERDF Modules in size)

## Infrastructure Costs

•Component	<u>(\$M)</u>	<u>EIS</u>	<u>CDR</u>
–Transporter		12.5	41.0
–Haul Road		21.8	23.2 (6.5)
–Disposal Facility		46.6 (27)	19.2 (10)
Total		81 (61)	83 (58)

( ) - Indicate estimate of what would be required for first reactor

## Waste Disposal - Ancillary Facilities

- **EIS:**
  - Radioactive wastes include spalled concrete and contaminated equipment
  - All reactors facilities are the same
  - Waste costs based on WHC LLBG (\$60/cu ft)
  - 1407 cu m (49,700 cu ft) of Low Level Waste per reactor facility
  - Only structures effected by Reactor removal were considered

## Waste Disposal - Ancillary Facilities

- **CDR:**
  - Waste forms estimated from C Reactor
  - 3540 cu m (125,000 cu ft) of LLW per reactor
  - Cost based on LLBG (\$60/cu ft)
  - Only structures effected by Reactor removal were considered

## Waste Disposal - Ancillary Facilities

- **C Reactor ISS:**
  - C Reactor - 71,000 cu ft of LLW
  - Use ERDF costs ( ~ \$3/ cu ft)

## Waste Disposal - Ancillary Facilities Cost Summary

<b>Task</b>	<b>EIS</b>	<b>CDR</b>	<b>ISS</b>
Building Removal	2.5	8.7	8.1
Waste Disposal	2.5	7.5	0.2
Waste Volume (Cubic feet)	49,700	125,00	71,000

## Reactor Removal

- **EIS and CDR:**
- Scope includes:
  - Concrete cutting and support girders
  - Packaging of the reactor core and shielding
  - Loading of core on the transporter

**EIS: \$4.5 M/Reactor**

**CDR: \$6.8 M/Reactor**

## USACE Estimate Review 1994

- Project Time and Cost, using MCASES cost model
- Only compared costs that were directly comparable with the CDR - did not include all costs

# USACE Estimate Review 1994

## Summary

- Transporter - Same assumption as EIS ( 2 units)
- Haul Road -Length 40% less then CDR  
Width 50% less then CDR  
Dynamic Compaction (3 times)  
No Maintenance or restoration costs
- Disposal facility - Utilize ERDF at no cost
- Building removal - Decontamination based on discussion with WHC
- Building Demolition - Activity based; not parametric (CDR)

## Overall Cost Comparison

Overall Cost Comparison (in million Dollars)								
Cost Subunit	EIS (1990 \$)	CDR (1994 \$)	USACE (1994 \$)	ISS (1996 \$)	EIS (1998 \$) 8 yrs. Escalation	CDR (1998 \$) 4 yrs. Escalation	USACE (1998 \$) 4 yrs. Escalation	ISS (1998 \$) 2 yrs. Escalation
Transporter	11.6	32.3	16.4	0	14.7	36.4	18.5	NA
Transp. Maint.	0	6.4	0	0	0	7.2	0	NA
Transp. Procurement	0	2.2		0	0	2.5	0	NA
Transp. Taxes	0.9	0	0	0	1.15	0	0	NA
Haul Road	21.8	23.2	5.9	0	27.6	26.1	6.6	NA
Disposal Facility	46.6	19.2	0.8	0	59	21.6	0.9	NA
Reactor Removal	35.8	56.3	-4.5	0	45.4	63.4	-5.1	NA
Waste Disposal Vol (000 x ft <sup>3</sup> )	46.7	129		71				
Cost / Reactor	33	73		33				
Cost / Reactor / Ttx.	25	60	0	NA	31.7	67.5	0	NA
Safe Storage (Site Services)	36	0		-2.5	45.6	0	0	-2.6
Building Removal (Const. Activities)	19.5	82.8	-3.7	-8.1	24.7	93.2	-4.2	-8.6
Engineering/PM (Engineering)	13.8	59.7	-1	-2.6	17.5	67.2	-1.1	-2.7
Miscellaneous (Proj. Adm) (Site Adm) (Contingency)	24 12 - 25%	276 40%	(1.4) NA	(0.9) (0.5) (3.5)	30.4	310.6	-1.6	(1.0) (0.5) (3.7)
<b>Total Cost</b>	<b>235</b>	<b>618</b>	<b>-33.6</b>	<b>-18.1</b>	<b>297.7</b>	<b>695.7</b>	<b>-38.1</b>	<b>-19.2</b>

Notes: - Numbers in ( ) represent cost per a single reactor  
- USACE cost does not represent all costs for reactor disposition

## Baseline Cost Comparison (In Million Dollars)

Cost Comparison (In million Dollars)							
REACTOR	ISS	ER Baseline Final <sup>1</sup>	Total <sup>2</sup>	EIS (1990 \$)	CDR (1994 \$) <sup>4</sup>	CDR Waste Disposal	CDR minus Waste Disposal
100 - B	0	41.9	41.9	28.5	73.1	23.9	49.2
100 - C	18	32.7	50.7	28.7	87.7	28.1	59.6
100 - DR	15	27.9	42.9	30	71	23.9	47.1
100 - D	15	27.4	42.4	29	71.2	23.9	47.3
100 - F	15	26.4	41.4	34	73.5	23.9	49.6
100 - H	15	31.2	46.2	30	73.6	23.9	51.7
100 - KE	14.9	48.4	63.3	27.5	103.1	32.3	70.8
100 - KW	15	43.4	58.4	27.3	98.4	32.3	66.1
<b>Total</b>	<b>108</b>	<b>280</b>	<b>388.3</b>	<b>235.5</b>	<b>653.5</b>	<b>212</b>	<b>441</b>
100 - N	20	43.3	63.3	NA	NA	NA	NA
<b>Total</b>	<b>128</b>	<b>323</b>	<b>451</b>				

- Notes:
- 1 Total minus ISS estimate.
  - 2 Estimate based on CDR costs minus waste disposal costs
  - 3 Contingency and escalation not included (Contingency - 20%)
  - 4 Estimate from 6/94 Report adjusted to 1994 dollars minus escalation.
  - 5 Costs for haul road, transporter, and burial ground are spread evenly across all reactors for comparison

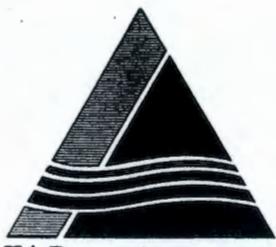
## Major Cost Differences (EIS/CDR)

Major Areas of Cost Differences between FEIS and TPPCE (CDR)

Area of Difference	FEIS	TPPCE (CDR)	Cost Difference (\$ in millions)
Waste Disposal	- No disposal Fee at Burial ground - Waste goes to the LLW burial ground  \$0	- LLWBG disposal cost \$60/ cu. yd. - Waste volume is for all waste except the reactor block  \$212	212
Transporter	- 2 tractor unit - Maintenance costs not included  \$13.8	- 4 tractor unit - Maintenance included after first move - Impacts design of haul road (loading, width)  \$41	27
Reactor Comparison	- Reactors are similar in design, construction, and contamination  \$0	- Gas recirculation wing at 100-H - KE, KW graphite pile 55% larger in volume; no columns in basins - C Reactor has 2 downcomers - C Reactor fuel basin twice the size of B, D, DR, F, H - H and F fuel basins contain sludge, soil, and debris - Some reactors have abutments - C, KE, KW have water tunnels, no valve pits  \$191	191
Eng./Proj. Mgmt	\$13.8	\$59.7	46
Misc. (GW monitor; S&M; haul road)	- Includes S&M, GW monitoring  \$43	- Does not include S&M, GW monitoring - Haul road construction costs greater (\$4 M)  \$4	-39
<b>Total Difference</b>			<b>437</b>

## EIS Alternatives with CDR Adjustments

Alternative	EIS Base Cost	Transporter	Reactor Comparison	Eng./ Proj Mgt	Waste Disposal	Total (\$)
1. No Action	44	NA	NA	NA	NA	44
2. Immediate One - piece Removal	228	27	191	46	212	704
3. Deferred One - piece Removal	235	27	191	46	212	701
4. Deferred Dismantlement	311	NA	191	46	212	760
5. In Situ	193	NA	191	46	212	642



## AGREEMENT IN PRINCIPLE

### HANFORD FEDERAL FACILITY AGREEMENT AND CONSENT ORDER NEGOTIATION OF COMMITMENTS FOR THE COMPLETION OF DISPOSITION OF HANFORD'S SURPLUS PRODUCTION REACTORS<sup>1</sup>

#### INTRODUCTION:

1. Amendment Four of the Hanford Federal Facility Agreement and Consent Order (Agreement, January 1991), and subsequent Environmental Restoration Refocusing negotiations (See Agreement change request M-16-94-03, May 1995), documented the parties commitment that "Schedules for cleanup and removal of the reactor cores from these buildings will be negotiated no later than December 1996... Similar negotiations shall be required for the 105-N Reactor Building."
2. In 1992 the U.S. Department of Energy (DOE) evaluated environmental impacts, benefits, costs, and institutional and programmatic needs associated with the decommissioning of the eight surplus reactors at the Hanford Site. Results of this review were documented in a 1993 Record of Decision (ROD) which selected the preferred disposition alternative of safe storage followed by deferred one piece removal of each of the eight surplus reactor cores. Analysis documenting this selection can be found in the DOE's Final Environmental Impact Statement (FEIS), Decommissioning of Eight Surplus Reactors at the Hanford Site Richland, Washington (DOE/EIS-0119F, December 1992).
3. The surplus reactor FEIS ROD also contained commitments by DOE that it intends to complete surplus reactor decommissioning consistent with Hanford cleanup schedules for remedial action included in the Agreement. Under this approach the safe storage period would be less than the 75 years outlined in the FEIS. The DOE committed that should the surplus reactor FEIS ROD prove to be inconsistent with CERCLA or RCRA decisions pertaining to adjacent waste sites and facilities covered by Agreement milestone series M-16-00, it would re-evaluate the priority of its selected alternative actions, and whether it may be appropriate to proceed with the preferred alternative on an Operable Unit-by-Operable Unit basis. Until reactor final disposition is initiated the DOE will conduct routine surveillance and maintenance sufficient to maintain the facilities in a safe storage condition.

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<sup>1</sup> For the purpose of these negotiations Hanford's surplus production reactors are defined as the 105 buildings associated with the B, C, D, DR, F, H, KE, and KW reactor complexes, and the 105 and 109 buildings at the N reactor complex.

4. Interim Safe Storage of Hanford's C Reactor has begun as a Large-Scale Technology Demonstration project supported by DOE's Office of Science and Technology (EM-50). This demonstration is expected to provide a number of benefits including among which are the following:
- Providing "lessons learned" which allow improvements in methodologies for placing reactor facilities in a safe condition.
  - Providing lessons learned which are equally applicable to final disposition.
  - Allowing the effective use of technology development funds in support of Hanford reactor decommissioning.
  - Allowing the placement of C Reactor in a safe and stable condition until final disposition is initiated.

C Reactor Interim Safe Storage (ISS) will provide a far safer facility work environment for personnel conducting surveillance and maintenance during the safe storage period, and will greatly reduce the likelihood of intrusion and environmental release.

5. The parties have entered into this Agreement in Principle (AIP) in order to establish the expectations and requirements for the conduct of negotiations.

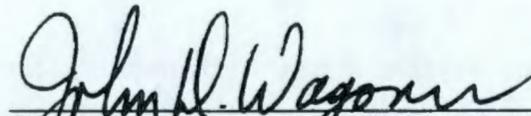
IN LIGHT OF THE PRECEDING, ECOLOGY, DOE, AND EPA AGREE TO THE FOLLOWING:

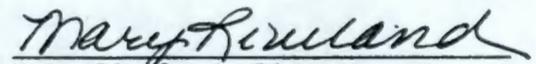
- A. To enter into formal Agreement negotiations, and to negotiate milestones, target dates, and associated Agreement language necessary to define an effective surplus reactor disposition program.
- B. That the negotiation of ISS and disposition schedules will include Hanford's N Reactor as well as Reactors B, C, D, DR, F, H, KE, and KW. Many uncertainties still exist in the definition of interim safe storage activities for Hanford's N Reactor. These negotiations will establish a schedule to develop a preferred alternative for ISS of N Reactor and to develop an assessment of elements including land-use planning, environmental impacts, cost, risk, and public and worker health and safety.
- C. That such negotiations will be conducted pursuant to Agreement Action Plan section 8.9, and unless otherwise agreed to by the parties (e.g., see paragraph 3) will be based on a phased approach, i.e.,
- Phase 1: Interim Reactor Safe Storage.
  - Phase 2: Final Reactor Disposition.

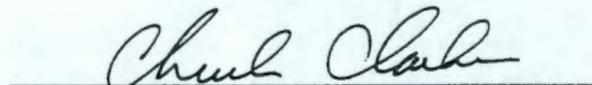
- D. That Ecology and EPA share regulatory authority for activities addressed under these negotiations. Ecology is the lead regulatory agency for D, DR, H, and N Reactors. EPA is lead for B, C, F, KE and KW Reactors.
- E. That negotiations will be conducted with due consideration to priorities and impacts of proposed reactor decommissioning activities in light of other Hanford Site activities.
- F. That during negotiations the parties will revisit the primary assumptions of DOE's September 1993 ROD in order to assess validity, or to determine the need for modification in light of current information. This assessment will include elements such as land use planning, environmental impact, cost, risk, public and worker health and safety, and coordination with other Tri-Party Agreement activities.
- G. That as part of these negotiations the parties will develop clear definitions of critical terminology, including "Interim Safe Storage," and that negotiated terms will be documented in Appendix A of the Agreement.
- H. That negotiations will be based in part on the joint recognition that ISS of Hanford's C Reactor will proceed throughout the negotiation period.
- I. That due to its historic significance Hanford's B Reactor has been placed on the National Register of Historic Places. B Reactor will be placed and maintained in a safe condition, and may follow a different pathway for final disposition.
- J. That these negotiations are being conducted concurrent with negotiations addressing remediation activities at Hanford's KE and KW Areas (Agreement milestone series M-34-00). That KE/KW fuel basin activities will impact negotiations for the disposition of the KE/KW Reactor facilities.
- K. That DOE, EPA, and Ecology recognize the likelihood of significant public interest regarding these negotiations, and the parties corresponding responsibility to allow adequate time for involvement and feedback from stakeholders including the Hanford Advisory Board, the State of Oregon, local governments, and affected Indian Nations.
- L. That in recognition of these coordination and stakeholder involvement needs the original schedule for negotiation conclusion (December 31, 1996) should be extended. The parties consequently agree that these negotiations will be completed no later than March 31, 1997.

- M. That opportunities for early and continuing public participation will be provided to include briefings for the Hanford Advisory Board, the State of Oregon, local governments, and affected Indian Nations during the negotiations in order to relay negotiation status and to solicit and resolve advice.
- N. That completion of these negotiations will be followed by the submittal of the text of tentative agreements and associated Agreement change packages for a public comment period of not less than 45 days. That the need for associated public meetings will be assessed as part of these negotiations, and that responses to significant public comments shall be prepared and issued prior to final Agreement approval.
- O. That these negotiations shall stand in lieu of the dispute resolution process as established in the Agreement and that if the parties are not able to resolve all issues in the negotiations, any unresolved matters, shall be referred for resolution under Article VIII for matters over which Ecology exercises final decision making authority and Article XVI for matters over which EPA exercises final decision making authority. Any dispute resulting from these negotiations shall be initiated at the Inter Agency Management Integration Team (IAMIT) level as described in the Agreement.

Approved this 31 day of December 1996.

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

  
\_\_\_\_\_  
Mary Riveland, Director  
State of Washington  
Department of Ecology

  
\_\_\_\_\_  
Chuck Clarke, Regional Administrator  
U.S. Environmental Protection Agency  
Region 10

# HANFORD ADVISORY BOARD

A Site Specific Advisory Board, Chartered under the Federal Advisory Committee Act

December 5, 1996

**Advising:**

US Dept of Energy  
US Environmental  
Protection Agency  
Washington Dept of  
Ecology

Chuck Clarke, Regional Administrator  
U.S. Environmental Protection Agency, Region 10  
1200 Sixth Avenue  
Seattle, WA 98101

**CHAIR:**

Merilyn Reeves

Mary Riveland, Director  
Washington Department of Ecology  
PO Box 47600  
Olympia, WA 98504-7600

**BOARD MEMBERS:**

**Local Business**  
Harold Heacock  
Frank Ochoa

**Labor/Work Force**  
Richard Berglund  
Thomas Carpenter  
Mark Hermanson  
Gerald Sorensen  
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**Local Environment**  
Rick Leaumont

**Local Government**  
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**Tribal Government**  
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**Public-At-Large**  
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Merilyn Reeves  
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**Regional Environ-  
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Paige Knight  
Todd Martin  
Gerald Pollet  
Elizabeth Tabbutt

**State of Oregon**  
Shelley Cimon  
Michael Graine

**Ex-Officio**  
Confederated Tribes of  
the Umatilla  
Washington Health  
Department

John Wagoner, Manager  
U.S. Department of Energy, Richland Operations  
P.O. Box 550 (A7-50)  
Richland, WA 99352

Subject: Interim Safe Storage of 105-C Reactor

Dear Messrs. Clarke and Wagoner, and Ms. Riveland:

## **BACKGROUND AND COMMENTS ON AGREEMENT-IN-PRINCIPLE**

A TPA milestone change request required that the agencies conclude negotiations to establish schedules and milestones for cleanup and removal of the reactor cores from all nine production reactors by December 31, 1996. These actions would be conducted to implement a Record of Decision (ROD) issued in 1993 which selected safe storage for up to 75 years followed by one piece removal and disposal in the 200 Areas. The ROD also commits DOE to reevaluate the priority of D&D actions to support TPA final site cleanup schedules and RCRA and CERCLA cleanup decisions for adjacent waste sites. A draft Agreement in Principle (AIP) has been prepared to govern conduct of negotiations and to extend the negotiation completion date to March 31, 1997. The AIP recognizes that the 105-C Interim Safe Storage (ISS) project will proceed during the negotiations.

The Board has reviewed the draft AIP and requests that Topic E be more specific and state that the cost estimates and worker/public health and environmental impacts will be updated to either verify the final EIS values and assumptions or to support selection of a different final disposal alternative. The presentation to the Board by Roger Stanley in November stated that this was planned. The Board may wish to give further advice following availability of updated information.

HAB Consensus Advice #58  
Subject: Interim Safe Storage of 105-C  
Adopted December 5, 1996  
Page 1

**EnviroIssues - Facilitation**  
Phone: (206) 343-7701 Fax: (206) 343-0448

**Technical Resources International, Inc. - Administration**  
723 The Parkway, Suite 200, Richland, WA 99352  
Phone: (509) 943-1804 Fax: (509) 943-5528

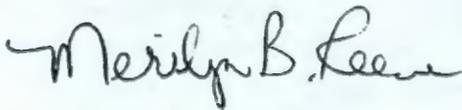
## SPECIFIC ADVICE ON 105-C INTERIM SAFE STORAGE

The 105-C ISS demonstration project proposes sealing openings into the reactor block, demolishing and removing outer portions of the building and equipment while leaving intact the three to five foot thick shield walls around the reactor core and front, rear and side spaces. These heavy walls would have openings filled in and be extended up to the top of reactor block elevation. A 75-year design life metal roof would cover the entire structure. The project includes major innovative technology demonstration activities funded by EM-50 for characterization of contaminants, decontamination, dismantlement, segmentation and demolition, waste minimization, facility stabilization, surveillance and monitoring and worker health and safety protection.

The Environmental Restoration Committee attended an informative presentation on the ISS project and tour of the 105-C reactor building on September 25. The Board is supportive of the proposed approach to reducing the footprint of the facility and providing a much more secure, safe, and intrusion resistant facility having much lower surveillance and maintenance costs until final disposal occurs. Interim safe storage is the first step for any of the alternatives for final disposition of the reactors. The Board also supports the innovative technology activities to be demonstrated during this project. Principal questions center on possible vadose zone contamination below the reactor and fuel storage basin from past leaks and concerns that ISS will become the final disposal. The Board supports the 105-C ISS project and recommends that maximum use be made of the FY 1997 funding available from EM-50, plus whatever ER program funds are available. This work represents a major part of reducing risks and performing clean up along the River corridor.

The Board looks forward to your written response, as called for in our charter.

Very truly yours,



Merilyn B. Reeves, Chair  
Hanford Advisory Board

cc: Alice Murphy, Designated Federal Official  
The Oregon and Washington Congressional Delegations



ERS 96-1205

STATE OF WASHINGTON  
DEPARTMENT OF HEALTH  
DIVISION OF RADIATION PROTECTION  
*Airustrial Center, Bldg. 5 • P.O. Box 47827 • Olympia, Washington 98504-7827*

December 9, 1996

Roger Stanley  
Washington Department of Ecology  
P.O. Box 47600  
Olympia, Washington 98504-7600

Dear Mr. Stanley:

**Below please find our comments regarding the Draft Agreement in Principle - Disposition of Reactors.**

Interim Safe Storage is an acceptable method from the Department of Health's perspective. We will need to be involved in reviewing the monitoring program to verify it will insure no releases are made to the environment through any pathways, including air, soil, or groundwater. We must also provide oversight on sample analysis and sampling procedures. Joint sampling will be an important part of this quality assurance.

We concur with the decision to treat B-reactor in a special manner due to its status on the National Registry of Historic Places. It is important to recognize the significant part B-reactor played in both Washington State and U. S. history.

Finally, we are concerned with plans to remove the reactor cores which will necessitate building a road through currently undisturbed desert. It would be unfortunate if attempts to restore already disturbed areas caused the destruction of desert which has never been disturbed.

Sincerely,

A handwritten signature in cursive script that reads "Debra McBaugh".

Debra McBaugh, Acting Head  
Environmental Radiation Section





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

JAN 0 9 1997

97-EAP-140

Ms. Marilyn Reeves, Chair  
Hanford Advisory Board  
22250 Boulder Crest Lane S. E.  
Amity, Oregon 97101

Dear Ms. Reeves:

BOARD CONSENSUS ADVISE #58/INTERIM SAFE STORAGE OF 105-C: DECEMBER 5, 1996

We appreciate the time taken by you and the Board in reviewing and commenting on the agencies' draft Reactor Disposition Agreement In Principle (AIP). As you know, Ralph Patt and the Boards' Environmental Restoration (ER) Committee members have been particularly helpful in this matter.

Subsequent to the Board's December 1996 meeting our negotiators met and agreed to modify the agencies' AIP in response to Board advise #58 (see enclosed final copy). Most specifically, the agencies agreed that as part of our negotiations the parties will evaluate each of the major assumptions of the U. S. Department of Energy's (DOE's) Reactor Record of Decision (ROD) in light of current information. This evaluation will be performed in order to aid the agencies in assessing whether or not ROD assumptions continue to appear valid, or if current knowledge indicates that modification is warranted. We expect to be able to provide our initial assessment to the Board's ER Committee in January 1997 and plan a more extensive presentation at the Board's February 1997 meeting.

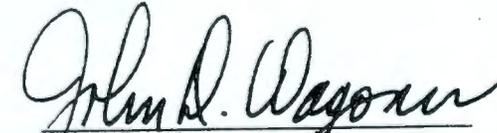
In regard to specific comments you offered regarding the placement of 105-C facilities in Interim Safe Storage (ISS), we offer the following: (1) We appreciate your support of the C Reactor ISS Demonstration Project and assure you that each of our agencies expect this project to move forward on schedule. We also note that Fiscal Year 1997 funding for this project has not been impacted by recent shortfalls experienced elsewhere in the ER Program; (2) The Parties are aware of the Board's concern in regard to cleanup of contamination beneath the C-105 building, as well as at other 100 area 105 reactor facilities. We expect to identify/establish a small zone beneath, and immediately adjacent to, these structures where addressing contamination will be conducted in coordination with either reactor building ISS or disposition; (3) We each view ISS as just that, i.e., an interim measure which will lead to subsequent final disposition pursuant to the DOE NEPA ROD and commitments between the parties reached during the course of these negotiations.

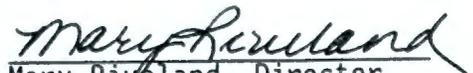
Ms. Marilyn Reeves

-2-

Please pass our thanks on to Board members for their continuing interest in our Reactor Disposition negotiations. We look forward to working closely with the Board and Committee members over the coming months. As you know, these decisions constitute a critical element in defining the future of the Hanford Reach.

Sincerely,

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

  
Mary Riveland, Director  
State of Washington  
Department of Ecology

  
Chuck Clarke, Regional Administrator  
U.S. Environmental Protection Agency  
Region 10

Enclosure

cc w/o encl:  
M. Blazek, ODOE  
D. Belsey, HAB  
B. Burke, CTUIR  
R. Jim, YIN  
R. Patt, HAB  
D. Powaukee, Nez Perce

[6450-01-P]  
Record of Decision  
Decommissioning of Eight Surplus Production Reactors  
at the Hanford Site, Richland, Washington

AGENCY: Department of Energy

ACTION: Record of Decision; Decommissioning of Eight Surplus Production Reactors at the Hanford Site, Richland, Washington

SUMMARY: The Department of Energy has considered the environmental impacts, benefits and costs, and institutional and programmatic needs associated with the decommissioning of eight surplus production reactors at the Hanford Site, Richland, Washington. Based on this review, the Department of Energy has decided on safe storage followed by deferred one-piece removal of these eight surplus production reactors at the Hanford Site. The Department of Energy intends to complete this decommissioning action consistent with the proposed Hanford cleanup schedule for remedial actions included in the Hanford Federal Facility Agreement and Consent Order (Tri-Party Agreement). Therefore, the safe storage period would be for less than the 75-year time frame outlined in the Final Environmental Impact Statement, Decommissioning of Eight Surplus Production Reactors at the Hanford Site, Richland, Washington (DOE/EIS-0119F, December 1992). Also, the Department of Energy intends to evaluate the priority of this decommissioning action relative to Comprehensive Environmental Response, Compensation, and Liability Act and Resource Conservation and Recovery Act remediation of the past practice units in the 100 Area being conducted under the Tri-Party Agreement. Should this decision prove to be inconsistent with subsequent Comprehensive Environmental Response, Compensation, and Liability Act and Resource Conservation and Recovery Act decisions, the Department of Energy will re-evaluate the appropriateness of proceeding with this course of action on an Operable Unit-by-

Operable Unit basis. Until decommissioning is initiated, the Department of Energy will continue to conduct routine maintenance, surveillance, and radiological monitoring activities to ensure continued protection of the public and the environment during the safe-storage period.

**FOR FURTHER INFORMATION CONTACT:**

For further information on the Final Environmental Impact Statement, contact Michael Talbot, Acting Director, Office of Communications, Richland Operations Office, U.S. Department of Energy, Richland, Washington, 99352 Telephone: (509) 376-7501. For further information on the Department of Energy National Environmental Policy Act process, contact Carol M. Borgstrom, Director, Office of NEPA Oversight (EH-25), Office of Environment, Safety and Health, U.S. Department of Energy, 1000 Independence Avenue SW, Washington, DC 20585 Telephone: (202) 586-4600 or (800) 472-2756.

**SUPPLEMENTAL INFORMATION:**

The Department of Energy prepared this Record of Decision pursuant to the Council on Environmental Quality Regulations for implementing the procedural provisions of the National Environmental Policy Act (40 CFR Parts 1500-1508, December 15, 1987) and Department of Energy regulations implementing the National Environmental Policy Act (10 CFR Part 1021). This Record of Decision is based on the Department of Energy Final Environmental Impact Statement for the Decommissioning of Eight Surplus Production Reactors at the Hanford Site, Richland, Washington (DOE/EIS-0119F).

The Hanford Site manufactured nuclear materials for the Nation's defense programs for over 40 years. To assist in this nuclear materials production, nine water-

cooled, graphite-moderated plutonium-production reactors were constructed along the Columbia River by the U.S. Government at the Hanford Site near Richland, Washington, between the years 1943 and 1963. Eight of these reactors (B, C, D, DR, F, H, KE, and KW), operated between the years 1944 and 1971, have been retired from service. These reactors have been declared surplus by the Department and are available for decommissioning. The ninth reactor, N-Reactor, is in transition to deactivation. The N-Reactor is not available for decommissioning at the present time and is not within the scope of the Final Environmental Impact Statement or this Record of Decision. The Department will prepare appropriate environmental documentation when N-Reactor becomes available for decommissioning. The Department has nominated the B-Reactor for inclusion in the National Register of Historic Places in accordance with the opinion of the Washington State Historic Preservation Officer and the provisions of 36 CFR Part 800, "Protection of Historic and Cultural Properties." On April 3, 1992, the National Park Service entered the Reactor in the National Register.

Today, the primary mission of the Hanford Site is environmental restoration. On May 15, 1989, the Department of Energy, the U.S. Environmental Protection Agency and the Washington State Department of Ecology signed an agreement to remediate radioactive and chemical waste at the Hanford Site. This agreement is the Hanford Federal Facilities Agreement and Consent Order, commonly known as the Tri-Party Agreement. The purpose of the proposed decommissioning activity at the eight reactor facilities is to isolate any remaining radioactive, mixed or hazardous waste in a manner that will ensure environmental impacts remain at an acceptable level, especially potential health and safety impacts to the public.

Analysis of the existing environment and the potential environmental impacts

associated with decommissioning of the eight surplus production reactors is presented in the Final Environmental Impact Statement for Decommissioning Eight Surplus Production Reactors at the Hanford Site, Richland, Washington.

In March, 1989, the Department of Energy issued a Draft Environmental Impact Statement (DOE/EIS-0119D) to analyze the impacts of the proposed action. Comments received during the public and agency review process of the Draft Environmental Impact Statement did not require the Department to modify any alternatives, to develop and evaluate any new alternatives, or to supplement, improve, or modify its analyses of the decommissioning alternatives. Therefore, the Department prepared and distributed an Addendum to the Draft Environmental Impact Statement in accordance with 40 CFR 1503.4(c). The Addendum (December 1992) states the Department of Energy's response to issues raised by commentors. The Draft Environmental Impact Statement and the Addendum constitute the Final Environmental Impact Statement (DOE/EIS-0119F) under the provisions of the Council on Environmental Quality regulations (40 CFR Part 1503.4(c)). The Notice of Availability of the Final Environmental Impact Statement was published in the Federal Register on January 15, 1993 (58 FR 4690). In addition to the proposed action of safe storage followed by deferred one-piece removal, the document discusses a no-action alternative for continuation of surveillance, monitoring and maintenance activities; an immediate one-piece removal alternative; a safe storage followed by deferred dismantlement alternative; and an in-situ decommissioning alternative. The proposed action and alternatives are described further below.

#### Alternatives Considered

1. *Proposed Action:* The proposed action is safe storage followed by deferred

one-piece removal. The proposed action consists of a safe storage period during which surveillance, monitoring, and maintenance are continued, followed by transport of each reactor block, intact on a tractor-transporter, from its present location in the 100 Area to the 200 West Area for disposal (a distance of about 5 to 14 miles, depending on the reactor location relative to the disposal site). Contaminated materials associated with the fuel storage basins would also be removed for disposal in the 200 West Area, along with contaminated equipment and components associated with the reactors. Uncontaminated portions of the fuel storage basin would be removed to provide access for the tractor-transporter. Other uncontaminated structures and equipment would be demolished and placed in landfills in the vicinity of the reactor sites. During preparation for safe-storage, building components and structures would be repaired as needed to ensure the safety and security of the facility during the safe-storage period. Building security, radiation monitoring, and fire detection systems would be upgraded to provide safety, security, and surveillance as long as required. The total cost for safe storage followed by deferred one-piece removal of all eight reactors was estimated to be about \$235 million in 1990 dollars. Occupational radiation doses were estimated to be about 51 person-rem for this alternative; short-term public radiation doses were estimated to be near zero. A hypothetical safe storage period of 75 years was used to estimate additional radiological inventory decay and surveillance and maintenance costs. Of the possible accidents associated with the proposed action, only the scenario involving the accidental dropping of a reactor block during transport was analyzed in detail because this scenario would yield the largest potential radiological consequences. This scenario would involve atmospheric resuspension of graphite powder that would cause an estimated population dose of 300 person-rem, which would most likely produce no health effect. Near-term ecological impacts would be minimal because the area under

consideration has already been disturbed as a result of other radioactive waste management activities and nuclear facility operations.

2. *No Action*: The no-action alternative is to continue the present action of routine surveillance, monitoring, and maintenance of the reactor structures for an indefinite period. These activities are the same as those required by safe-storage followed by deferred one-piece removal. Over the 100-year analysis period considered in the Environmental Impact Statement (and over any subsequent 100-year period), the cost to continue the present action was estimated to be approximately \$44 million in 1990 dollars. The occupational radiation dose over the first 100-year period for surveillance, monitoring, and maintenance was estimated to be about 24 person-rem; short-term public radiation doses were estimated to be near zero. At the end of the 100-year surveillance, monitoring and maintenance period, decommissioning would still be required and subsequent environmental impacts would be similar to those from the other alternatives discussed.

Also considered was a second no-action alternative: doing nothing further, which would include the closure of the facilities and the discontinuation of all related activities. This no-action alternative was not analyzed in detail, because it would not: 1) properly isolate the remaining contaminated materials in the facility from the environment, 2) provide any maintenance or repair of the structures and 3) make any other provisions for protection of human health and safety.

3. *Immediate One-Piece Removal*: Immediate one-piece removal involves transportation of each reactor block, intact on a tractor-transporter, from its

present location in the Hanford 100 Area to the Hanford 200 West Area for disposal. The reactor block includes the graphite core, the thermal and biological shields, and the concrete base. Contaminated portions of the associated fuel storage basins would also be removed and disposed of in the 200 West Area, along with other contaminated equipment and components in buildings that house the reactors and fuel storage basins. Uncontaminated portions of the fuel storage basins would then be removed to provide access for the tractor-transporter. Other uncontaminated structures would be salvaged if usable or demolished and placed in waste areas at or near the reactor sites. The total cost for immediate one-piece removal of all eight reactors was estimated to be about \$228 million 1990 dollars. Occupational radiation doses were estimated to be about 159 person-rem for this alternative, and short-term public radiation doses were estimated to be near zero. Under a postulated accident (dropped reactor block scenario, discussed above), population dose would be approximately the same as the dose evaluated for the proposed action. Near-term ecological impacts would be minimal because the area under consideration has already been disturbed as a result of other radioactive waste management activities and nuclear facility operations.

**4. Safe Storage Followed by Deferred Dismantlement:** Safe storage followed by deferred dismantlement means a safe-storage period during which surveillance, monitoring, and maintenance are continued, followed by piece-by-piece dismantlement of each reactor, and transport of radioactive waste to the 200 West Area for disposal. Activities during preparation for safe storage and during the safe storage period are approximately the same as those in the safe storage followed by deferred one-piece removal alternative. At the end of the safe storage period, each reactor block would be disassembled piece-by-piece, and all

contaminated equipment and components would be packaged and transported to the 200 West Area for disposal. Contaminated portions of the associated fuel storage basins, along with contaminated equipment and components, would also be removed for disposal in the 200 West Area. Uncontaminated structures and equipment would be demolished and placed in landfills in the vicinity of the reactor sites. The total cost for safe storage followed by deferred dismantlement of all eight reactors was estimated to be about \$311 million in 1990 dollars. Occupational radiation doses were estimated to be about 532 person-rem for this alternative; short-term public radiation doses were estimated to be near zero. A safe-storage period of 75 years was used to estimate additional radiological inventory decay and surveillance and maintenance costs. Of the accidents postulated for this alternative, a severe weather accident (storm) during dismantlement and a rail car accident involving fire during transport of radioactive wastes to the burial ground were determined to have the largest potential radiological consequences. If these accidents were to occur they would result in a maximum population dose of 300 person-rem from the severe weather scenario and 800 person-rem from the rail car accident (i.e., each scenario would most likely produce no health effect). Ecological impacts would be minimal because much of the area under consideration has already been disturbed as a result of radioactive waste management activities and nuclear facility operations.

5. *In-Situ Decommissioning:* In-situ decommissioning involves preparing each reactor block for covering with a protective mound and engineered barrier and constructing the mound and barrier. Surfaces within the facility would be painted with a fixative to ensure retention of contamination during subsequent activities. Roofs, superstructures, and concrete shield walls would be removed down to the level of the top of the reactor block. Structures surrounding the

shield walls would be demolished and left in place. Voids, piping and other channels of access would be back-filled with grout/gravel or similar material to ensure isolation of the reactor from the environment. Finally, the reactor block, its adjacent shield walls, and the spent fuel storage basin, together with the contained radioactivity, gravel, and grout, would be covered to a depth of at least five meters with a mound containing earth and gravel and topped with an engineered barrier designed to limit water infiltration to 0.1 centimeter per year. Riprap on the sides of the mounds would ensure structural stability of the mounds and mitigate the impacts of any flood that might reach the reactors. The total cost of in-situ decommissioning of all eight reactors was estimated to be about \$193 million in 1990 dollars. Occupational radiation doses were estimated to be about 33 person-rem for this alternative, and short-term public radiation doses during the decommissioning period were estimated to be near zero. No accident scenarios which would result in a radiological release were postulated for this alternative. Near-term ecological impacts would be minimal because the area under consideration has already been disturbed as a result of other radioactive waste management activities and nuclear facility operations. The mounds and subsequent monitoring systems would be maintained for an institutional control period of at least 100 years.

### Decision

Based on its review of the environmental impacts, of total project cost, and of the results of the public review process, the Department has decided on safe-storage of the eight reactors followed by deferred one-piece removal. Because the environmental impacts of the alternatives do not offer a strong basis for selection, the Department also considers this to be one of three environmentally preferable alternatives. This selection is consistent with both the Department

of Energy's preferred alternative in the Final Environmental Impact Statement and the Tri-Party Agreement. The Department proposes to complete the decommissioning of the eight surplus production reactors, consistent with related activities scheduled under the Hanford Tri-Party Agreement. The Department intends to integrate and prioritize this decision with the related Comprehensive Environmental Response, Compensation, and Liability Act or Resource Conservation and Recovery Act remediation activities scheduled under the Tri-Party Agreement. Should this decommissioning decision eventually be shown to be inconsistent with subsequent remediation decisions, the Department of will reevaluate the appropriateness and timing of proceeding with this decision on an operable unit-by-operable unit basis.

The environmental impacts of the alternatives do not offer a strong basis for selection among the alternatives (see Table 1). Although there are apparent differences in occupational radiation dose among the alternatives, all of the estimated doses are small and no occupational cancer fatalities would be expected for any of the alternatives. The action alternatives would result in very similar environmental impacts. Estimated radiation doses and impacts from drinking water from a hypothetical well drilled near a waste disposal site were low for all of the action alternatives. Estimated radiation doses and impacts from potential accidents were also low for all action alternatives. Impacts associated with long-term population dose estimates for the action alternatives would be essentially the same and small.

The No Action Alternative would result in greater radiation doses from drinking water from a hypothetical well drilled near a reactor site than any of the action alternatives. The impacts associated with long-term population dose for the No

Table 1. Factors Considered in Selecting a Decommissioning Alternative.<sup>a</sup>

Decommissioning Alternative	Occupational Radiation Dose (Person-Rem)	Occupational Cancer Fatalities	Total Cost (millions of 1990 \$)	Population Dose over 10,000 years <sup>(b)</sup> (person-rem)	Population Cancer Fatalities over 10,000 years	Maximum Well Dose <sup>(c)</sup> (rem/yr)
No action (continue present action)	24	0	44	50,000	20	1.2
Immediate one-piece removal	159	0	228	1,900	1	0.04
Safe storage followed by deferred one-piece removal	51	0	235	1,900	1	0.04
Safe storage followed by deferred dismantlement	532	0	311	1,900	1	0.04
In situ decommissioning	33	0	193	4,700	2	0.03

- (a) Quantities are for all eight reactors. Costs are for 100 years.  
 (b) The Department of Energy used a conversion factor of 400 cancer deaths per one million person-rem.  
 (c) This is the maximum dose rate to a person drinking water from a well drilled near the waste disposal site at any time up to 10,000 years.

Action Alternative would also be greater than for any of the action alternatives.

The Department did not select the No Action Alternative or the In-Situ Decommissioning Alternative because neither of these alternatives would remove the reactor cores from the 100 Area; removal of the reactor cores from the vicinity of the Columbia River was favored by the majority of the commentors, and because of the increased long-term and drinking water impacts as compared to the action alternatives.

The Department does not prefer the Safe Storage Followed by Deferred Dismantlement Alternative because it would result in a higher occupational radiation dose and because the costs would be substantially higher than costs of other action alternatives and provide no commensurate additional benefits. Safe Storage Followed by Deferred One-Piece Removal consistent with the time frame of the Tri-Party Agreement would result in removal of the reactor cores on a schedule that would be somewhat delayed from the 12-year schedule for immediate one-piece removal. While the majority of commentors prefer immediate one-piece removal, leaving the reactors in place during the safe storage period would pose no significant environmental risks. The slightly higher total cost for Safe Storage Followed by Deferred One-Piece Removal as compared with Immediate Removal is attributable to surveillance and maintenance costs during the safe storage period. The cost differential would be reduced by the reduction in the safe storage period from the 75 years used in the analysis. In choosing safe storage followed by deferred one-piece removal, the Department considered the priority of this proposed action relative to other remedial actions the Department may need to conduct at the Hanford Site.

*Environmentally Preferred Alternative:* The Department of Energy regards the Safe Storage Followed by Deferred Dismantlement, Safe Storage Followed by One-Piece Removal, and Immediate One-Piece Removal Alternatives as equally favorable based solely on the evaluation of environmental impacts. Therefore, the selected alternative is also identified as one of the environmentally preferred alternatives.

*Environmental Impacts and Mitigation Measures:* The environmental impacts associated with the selected action include consequences related to routine and non-routine conditions. Modeling assumptions and accident scenarios used in this evaluation are considered conservative by the Department of Energy. The analyses were conducted in such a manner that the calculated environmental impacts would exceed those actually expected or experienced. In assessing the radiological consequences from postulated accidents for this selected course of action, for example, it was assumed that the reactor block drops from the tractor-transporter, crushing one edge. As a result, it was assumed that approximately 1% of the total block volume (about 10 cubic meters) will be reduced to a fine powder, of which approximately 1% would be resuspended by wind for an 8-hour period before recovery operations stabilize the material. These assumptions and values are very conservative when compared to values provided by the U.S. Environmental Protection Agency for fugitive emissions from a number of industries in the United States. These assumptions are not intended to be predictions of actual future consequences.

Environmental impacts associated with the selected course of action could result from decommissioning actions; accidents during decommissioning actions; and long-term, post-decommissioning releases of radionuclides from the disposal

of low-level radioactive waste. Occupational radiation doses were estimated at 51 person-rem for the decommissioning of all eight surplus production reactors, and public radiation doses during the decommissioning period were estimated to be nearly zero. Radiological consequences to the general public from a postulated accident (dropped reactor block scenario discussed above) were assessed. It was determined that the dose to the maximally exposed individual would be 80 millirem, and the population dose would be 300 person-rem. No adverse health effects would be expected from such an exposure. Long-term radiological releases to the ground water from the 200 Area disposal site and associated consequences were also calculated. It was estimated that the population dose from this long-term release would be about 1,900 person-rem over a postulated 10,000-year period (This same population would receive 9 billion person-rem from natural radiation sources over the 10,000-year time frame.). It was also assumed that loss of institutional control occurs after 100 years, and that the Hanford Site is used for other purposes. Maximum individual doses to persons that might drink water from wells drilled near the waste disposal site over a 10,000-year period were calculated, assuming dilution, to be approximately 0.04 rem per year. Also, a full garden scenario in which it was assumed that an individual would use contaminated water from a well that intercepts all of the contamination leached from one reactor for irrigation, livestock and drinking water was assessed. Based on extremely conservative assumptions for this scenario, it was estimated that an individual using a well located 5 kilometers from the 200 West Area disposal site would receive a lifetime (70 years) dose of 95 rem [The estimated probability that this individual would die from cancer induced by this radiation dose would be about  $5 \times 10^{-2}$  (or 1 chance in 20)], with the maximum dose occurring at 6,160 years following disposal. Migration of radioactive waste from the 200 West

Area disposal site to the Columbia River is estimated to result in an inconsequential maximum lifetime dose of  $1.1 \times 10^{-5}$  rem to an individual living along the River.

Ecological impacts from the preferred alternative would be minimal because much of the area under consideration has been previously disturbed as a result of past radioactive waste management activities. Temporary disturbance of wildlife would occur resulting from activities required to prepare the reactor buildings for decommissioning. Additional temporary ecological impacts may occur as a result of local excavation to obtain soil for backfilling the 100 Areas after removal of the surplus reactors.

Adverse environmental impacts that can be mitigated would include impacts resulting from occupational radiation doses, disruption of land areas, and migration of chemicals and radionuclides caused by water infiltration through waste disposal sites. The principle of maintaining radiation exposures as low as reasonably achievable will be applied in every phase of engineering planning that deals with radioactive material. All workers engaged in decommissioning activities will be required to wear dosimeters to detect excess radiation doses. All radiation zones will be monitored and approved before workers will be allowed to enter. Protective shields, remotely operated tools and contamination control envelopes will be employed when appropriate. Sites used for backfill soil, dirt and gravel will be surveyed for archeological resources and endangered or threatened species, and will be rehabilitated once the proposed action is complete. Water migration through the waste disposal sites will be mitigated by the installation of a multi-layer, engineered barrier consisting of a capillary layer of fine-textured soil underlain by an

impervious layer of soil/bentonite clay.

Socioeconomic impacts are caused primarily by the influx (or egress) of workers required by the project. The maximum number of workers required onsite at any one time for any decommissioning alternative is 100. This number is less than 1% of the workers presently on the Site and would produce negligible socioeconomic impacts.

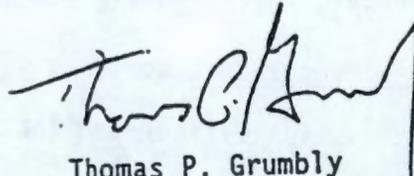
Resources committed to the decommissioning of the Hanford surplus reactors would include the land on which the reactors now stand, the land required for low-level waste disposal for the one-piece removal alternative, and for the energy necessary to carry out the alternative.

The Department of Energy nominated the B-Reactor for inclusion in the National Register of Historic Places in accordance with the opinion of the Washington State Historic Preservation Officer and the provisions of 36 CFR Part 800, "Protection of Historic and Cultural Properties." On April 3, 1992, the National Park Service entered the B-Reactor in the National Register. Specific actions to mitigate the cumulative impacts of decommissioning on the historic preservation of B-Reactor will be determined later in accordance with 36 CFR Part 800. Actions to preserve this historic resource may include extensive recordation by photographs, drawings, models, exhibits and written histories, and may also include preservation of some portions of the B-Reactor for display on or near its present location or at some other selected location.

**CONCLUSION**

The Department of Energy has considered the short- and long-term environmental impacts, costs, results of the public hearing process, and the priority of this proposed action relative to other remedial actions being conducted at the Hanford Site for decommissioning the eight surplus reactors. The Department of Energy has decided to decommission the reactors by safe-storage followed by one-piece removal in coordination with other actions at Hanford, and consistent with environmental standards applicable at the time the action is taken. The Department of Energy will continue to evaluate the benefits of measures to avoid or minimize environmental impacts associated with this decision.

Issued at Washington, D.C. this 14<sup>th</sup> day of September, 1993.



Thomas P. Grumbly  
Assistant Secretary for Environmental  
Restoration and Waste Management



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

97-EAP-246

Mr. Gerald Woodcock, President  
B Reactor Museum Association  
P. O. Box 1531  
Richland, Washington

FEB 14 1997

Dear Mr. Woodcock:

CONSIDERATION OF ACTIVITIES ASSOCIATED WITH HISTORIC B REACTOR

The U.S. Department of Energy, Richland Operations Office (RL) understands that the B Reactor Museum Association (BRMA) would like stronger involvement in decisions relating to historic properties associated with B Reactor and the Manhattan Project and Cold War Era Historic District at the Hanford Site. In your letter, BRMA also proposed that RL provide sufficient opportunity for comments on actions that would dismantle/demolish any structure near B Reactor.

Activities associated with B Reactor and the Manhattan Project and Cold War Era Historic District at the Hanford Site will continue to be communicated to BRMA prior to dismantlement or demolition. The Cultural Resources Program has improved its public involvement process by holding public meetings and workshops to discuss the status of all historic structures on the Hanford Site. Several members of BRMA have attended these meetings and provided comments on B Reactor as a museum.

The Programmatic Agreement (PA) which was sent to BRMA on July 26, 1996, allows RL to prepare historical documentation for B Reactor and requires the development of a treatment plan that describes recommended mitigation and reuse of B Reactor. This treatment plan will be available in March with a 60-day comment period for BRMA. At this time the Cultural Resources Program is recommending that the plan propose B Reactor as a museum. The treatment plan also recommends that an Historic American Engineering Record be prepared for B Reactor. When the plan becomes available, I encourage you to take the opportunity to provide your views to Dee Lloyd of the Environmental Assurance, Permits and Policy Division.

If you have any questions associated with B Reactor as a Museum or other issues about historic properties at the Hanford Site, please contact Dee Lloyd, Cultural Resources Manager, of my staff, at 372-2299. I would also encourage you to visit our Cultural Resources Internet Site at <http://ap001.rl.gov/doe/culres/index.html> for more information.

Sincerely,

A handwritten signature in black ink, appearing to read "Jim Rasmussen".

James E. Rasmussen, Director  
Environmental Assurance, Permits  
and Policy Division

EAP:DWL  
cc: on back

cc:  
T. Marceau  
P. Nickens

FEB 14 1997

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 EAP  
 MGR  
 ESH  
 AINE  
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 SID  
 RP  
 OCC



P.O. Box 1483  
 Richland, WA 99352

February 19, 1997

John Wagoner, Manager  
 U.S. Department of Energy  
 Richland Operations Office  
 PO BOX 550  
 Richland, Washington 99352

Tom Fitzsimmons, Director  
 State of Washington, Department of Ecology  
 P.O. Box 47600  
 Olympia, WA 98504-7600

Charles C. Clark, Regional Administrator  
 EPA - Region 10  
 1200 6th Ave.  
 Seattle, WA. 98101

Gentlemen:

Many individuals and organizations in the Tri-Cities Area feel strongly that the Hanford B Reactor is a national treasure and a piece of our history that should not be lost or degraded. This letter is to inform you that the Tri-Cities Technical Council (TTC) has reviewed the matter and, on behalf of the local technical community, requests your support for this position and requests that you perform specific actions to assure the B Reactor is preserved and made accessible to the public. As Parties in the Hanford Federal Facility Agreement and Consent Order, only you can prevent irreparable damage to the B Reactor and provide a pathway to have this historic facility preserved and made accessible to the public.

Recent planning work for the clean-up of the Hanford reservation includes an "AGREEMENT IN PRINCIPLE" regarding negotiations for the cleanup and disposition of Hanford's surplus production reactors. Eight of the nine shut down reactors are to be placed into "Interim Safe Storage". That "agreement" recognizes that special treatment and disposition will be allotted to the B reactor. DOE has previously recognized B Reactors' historic significance. The 105B

**B-Reactor Museum**  
**February 19, 1997**

building must not be treated in a manner similar to that planned for the other reactors (surrounding structures removed and the reactor encapsulated).

We request that you confirm a commitment to put B Reactor into a condition that supports the reactors's conversion to a publicly accessible museum. All Parties must agree on end point criteria which will be appropriate for limited use of the 105B Building and associated support structures. The goal of this criteria should be to make the facility safe for public access and for long term preservation.

Once end point criteria is established, The Department of Energy must identify, fund, and accomplish any required decontamination, building maintenance, and other restoration to ensure safe facility access. It should be the goal to restore and renovate the facility to a condition as it appeared during actual operation. The Phase I Feasibility Study completed in 1995 indicated that the cost to preserve and convert the facility would be considerably less than the cost of the destruction and removal option.

It is our sincere hope that this letter serves to focus your attentions on this very important issue. To lose B Reactor would be to lose a piece of our countries heritage. Each day, the opportunity is degraded to return B Reactor to a condition as it appeared during actual operation. Your actions today will make it possible to view this historic facility for hundreds of years to come.

Very Sincerely,



Ted Anderson, Chairman

RL CONTROL  
MAR 12 1997  
RICHLAND  
OPERATIONS OFFICE



STATE OF WASHINGTON

DEPARTMENT OF ECOLOGY

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

April 14, 1997

Mr. Ted Anderson, Chairman  
Tri-Cities Technical Council  
P. O. Box 1483  
Richland, WA 99352

Dear Mr. Anderson:

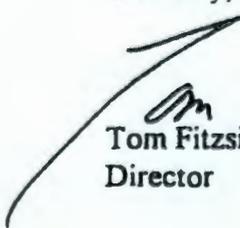
Thank you for your letter dated February 19, 1997 requesting Department of Ecology support for the preservation of the Department of Energy's B Reactor.

Ecology, the Environmental Protection Agency, and the U. S. Department of Energy (USDOE) have recently concluded the negotiation of surplus production reactor decommissioning amendments to the Hanford Federal Facility Agreement and Consent Order (Tri-Party Agreement). These tentative agreements will be issued for public comment in early to mid May. As part of our negotiations, staff spent considerable time evaluating reactor decommissioning (cleanup) processes, and their interface with decision processes now in progress which focus on establishing B Reactor as a national engineering landmark or museum. Included within our tentative agreement is the establishment of definitive schedules for the development and issuance of a B Reactor: (a) hazards assessment; (b) phase two feasibility study; and (c) surveillance and maintenance plan. In reaching these agreements, we have been careful to coordinate the timing of the development and submittal of these documents with B Reactor preservation activities under the National Historic Preservation Act.

Our primary responsibility is to ensure that environmental conditions at B Reactor are adequately addressed regardless of what decisions are made for its future use. However, we also recognize that disposition of USDOE's B Reactor may well be as a publicly accessible site. Consequently, Ecology supports placing USDOE's B Reactor in a safe and environmentally sound configuration which permits its conversion to a publicly accessible landmark or museum. In addition, we have and will continue, to take whatever steps are necessary to ensure that cleanup actions are coordinated with preservation decision processes.

I hope this clarification is helpful, and look forward to your comments on the agencies' tentative agreement.

Sincerely,



Tom Fitzsimmons  
Director

Mr. Ted Anderson, Chairman  
April 14 1997  
Page 2

cc: Mary Lou Blazek, ODOE  
Bill Burke, CTUIR  
Chuck Clarke, EPA Region 10  
Russell Jim, YIN  
Donna Powauke, Nez Perce  
Marilyn Reeves, HAB  
Doug Sherwood, EPA Region 10  
Mary M. Thompson, CTED/SHPO  
John D. Wagoner, DOE RL



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

APR 16 1997

97-EAP-366

Mr. Ted Anderson, Chairman  
Tri-Cities Technical Council  
P.O. Box 1483  
Richland, Washington 99352

Dear Mr. Anderson:

#### CONSIDERATION OF ACTIVITIES ASSOCIATED WITH HISTORIC B REACTOR

Thank you for your letter requesting support from the Hanford Tri-Parties who are working to restore and preserve the Hanford Site. At this time all three parties are interested in providing a path forward to have this historic facility preserved and made accessible to the public. The U.S. Department of Energy, Richland Operations Office (RL) recognizes the historic significance associated with the B Reactor and it's important role in world, national, and local history.

RL has been working with the B Reactor Museum Association (BRMA) to foster stronger involvement by BRMA on decisions relating to historic properties associated with B Reactor and the Manhattan Project and Cold War Era Historic District at the Hanford Site. Activities associated with B Reactor and the Manhattan Project and Cold War Era Historic District at the Hanford Site will continue to be communicated to BRMA, the Tri-Cities Technical Council (TTC) and other interested parties prior to dismantlement or demolition. The RL Cultural Resources Program has improved its public involvement process by holding public meetings and workshops to discuss the status of all historic structures on the Hanford Site. Several members of BRMA have attended these meetings and provided comments on B Reactor as a museum.

The enclosed Programmatic Agreement (PA) which was sent to BRMA on July 26, 1996, allows RL to prepare historical documentation for B Reactor and requires the development of a treatment plan that describes recommended mitigation and reuse of B Reactor. This treatment plan will be available in late April or early May 1997, with a 60-day comment period for BRMA, TTC, and other interested parties. At this time the RL Cultural Resources Program is recommending that the plan propose B Reactor as a museum. The treatment plan also recommends that an Historic American Engineering Record be prepared for B Reactor. When the plan becomes available, I encourage you to take the opportunity to provide your views to Dee Lloyd of the Environmental Assurance, Permits and Policy Division.

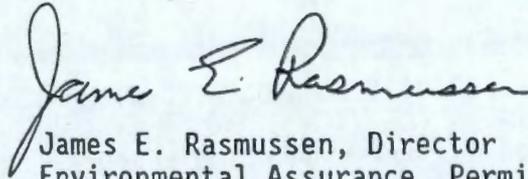
APR 16 1997

Mr. Ted Anderson  
97-EAP-366

-2-

If you have any questions associated with B Reactor as a Museum or other issues about historic properties at the Hanford Site, please contact Mr. Lloyd, Cultural Resources Manager, at 372-2299. I would also encourage you to visit RL's Cultural Resources Internet Site at <http://hanford.gov/doe/culres/index.html> for more information.

Sincerely,



James E. Rasmussen, Director  
Environmental Assurance, Permits  
and Policy Division

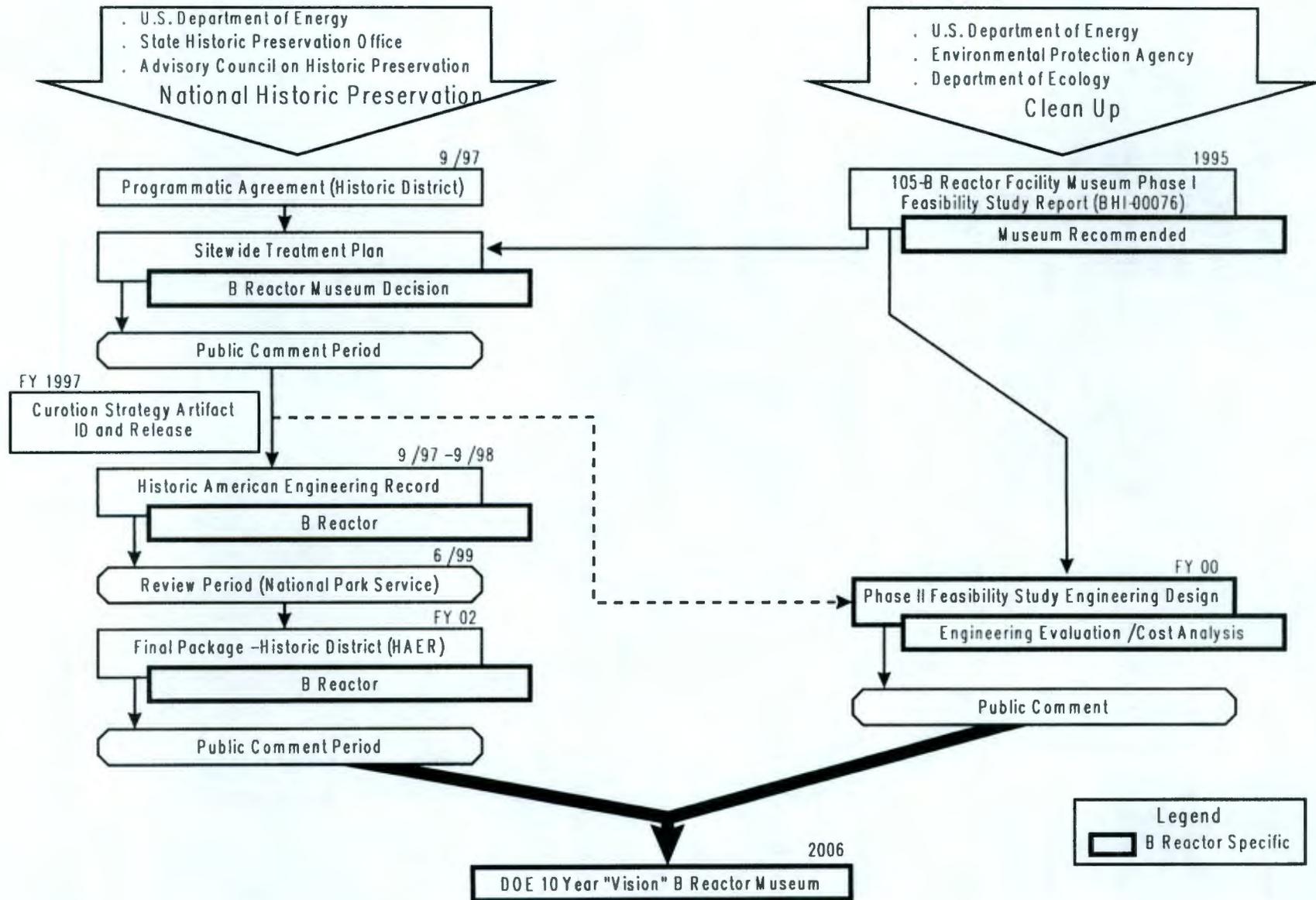
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Enclosure

cc w/o encl:

Charles C. Clark, EPA  
Tom Fitzsimmons, Ecology  
Tom Marceau, BHI  
Paul Nickens, PNNL  
Doug Sherwood, EPA  
Roger Stanley, Ecology  
Gerry Woodcock, BRMA

# B Reactor Museum Path Forward



BS-10

## **B Reactor Considerations**

*The disposition of Hanford's surplus production reactors has considered the 105-B (B Reactor) a unique facility that will follow a different path than the other reactor facilities. The B Reactor was placed on the National Register of Historic Places on April 3, 1992. The B Reactor has also been listed as a National Historic Mechanical Engineering Landmark (1976), a National Civil Engineering Landmark (1993), and has received the Nuclear Historic Landmark Award (1992).*

*It is the intent of the U.S. Department of Energy (DOE) to facilitate the development of the B Reactor as a museum and to integrate this with placing the facility in a safe condition for museum operations. Because the B Reactor has been placed on the National Register of Historic Places, DOE must comply with the National Historic Preservation Act prior to taking any action on the historic site. A focus of the negotiations was how this process would integrate with the standard cleanup methodology. This process is described in the following flowsheet and was utilized in developing Tri-Party Agreement commitments as shown in the M-93-00 Agreement Change Request.*